

COMMERCIAL REFRIGERATION & AIR CONDITIONING

OCTOBER 1955



You Can Qualify Your Salesmen / 36

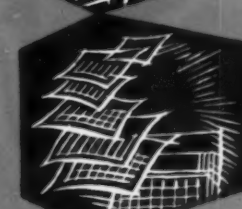
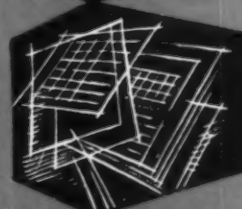
Printed Forms Can Stop Those Profit
Leaks / 46

How To Use an Aptitude Test in Hiring
Salesmen / 44

Collecting Past-Due Accounts / 90

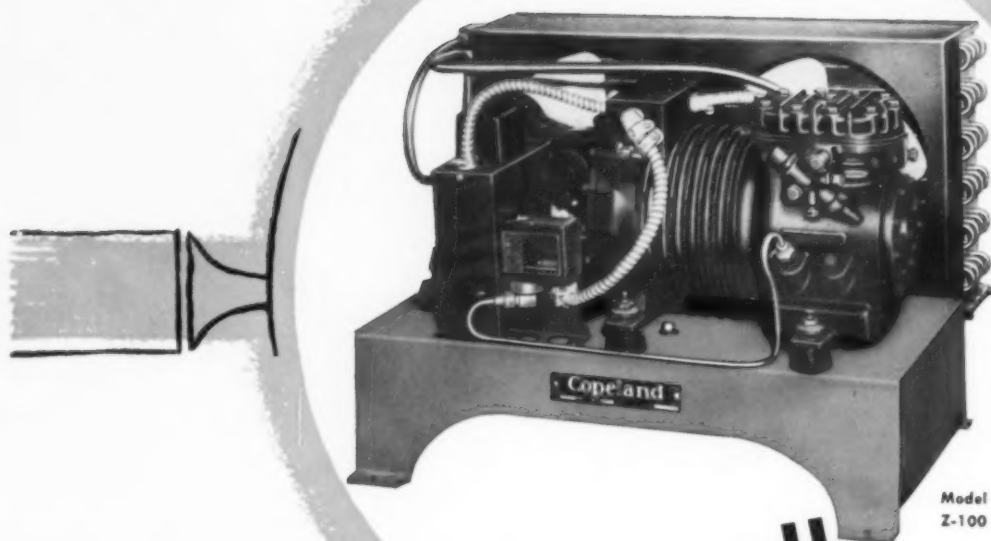
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How To Get Credit Information While
Making the Sale / 40



*Better
Business
Manage-
ment
Means
Bigger
Business
Profits*

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT



just the facts sell

COPELAMETIC

THE *Accessible* HERMETIC

Take a fact like direct drive, hermetically sealed. Your customer will know this Copelametic feature eliminates breakdowns from frayed belts and leaky seals. No manual oiling to worry about, either.

But your prime sales maker is Copeland-engineered "accessibility." The rare servicing needed by Copelametic is taken care of on

the spot by your own mechanics . . . no lost time for factory repairs.

Quiet-running, efficient Copelametic units are available for all applications, remote or self-contained. Air-cooled models from 1/6 H.P. through 3 H.P., water-cooled, 1/3 H.P. through 7 1/2 H.P.



REFRIGERATION UNITS (OPEN TYPE AND COPELAMETIC) WATER COOLERS

Copeland
DEPENDABLE *Electric* REFRIGERATION



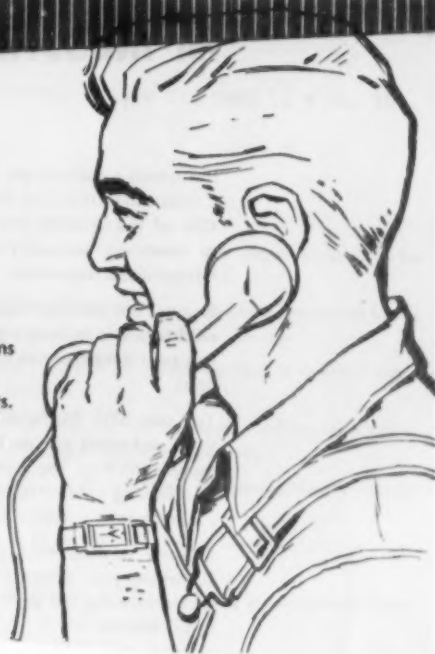
COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO

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for
good service
...all along the
line

call your
ALCO
wholesaler

...he's the vital link
in our industry that joins
us all together for
mutual help and profits.



call for
ALCO 402
thermo valves

... they fit those tight
spots in small fixtures
(display cases, milk
coolers, freezers, etc.) ...
and can be installed
in any position!

Designers and Manufacturers
of Thermostatic Expansion
Valves, Evaporator Pressure
Regulators, Solenoid Valves,
Float Valves, Float Switches.



engineered for service for life

ALCO VALVE CO.

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663

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From mild coolness
to extremely low temperatures...

Make it



for INDUSTRIAL REFRIGERATION

Industrial applications for Brunner Refrigeration Condensing Units are almost unlimited. The versatility of the Brunner line makes it possible for you to meet an unusually wide range of industrial refrigeration demands.

Brunner has the right size unit for any job... for a mild coolness to keep eggs fresh, or down to frigid, sub-zero temperatures for metals hardening operations.

You can SELL BRUNNER with full confidence that your customers are getting the finest refrigeration money can buy. The Brunner name on Refrigeration Condensing Units insures dependable performance... with longer, more economical service life.

Brunner representatives will gladly assist you in surveying your customer's refrigeration needs, and recommending the right units for specific industrial applications.

Cash in on Brunner's reputation for satisfying more customers... with bigger profits for you.

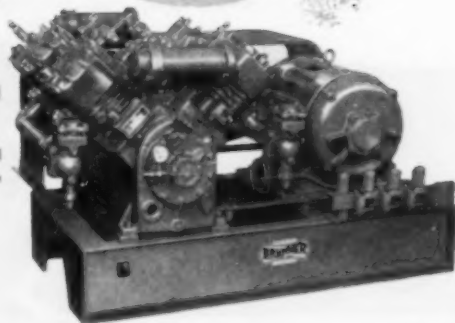
SELL BRUNNER!

BRUNNER MANUFACTURING CO., Dept. G-1055, UTICA, N.Y.
The Brunner Co., Gainesville, Ga.
In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario



BRUNNER REFRIGERATION CONDENSING UNITS

... for remote installation in industrial applications are supplied in sizes up to 75 H.P. Brunner Compressor Units for use with evaporative condensers also available up to 75 H.P.



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Fur Storage

Ice Manufacture

Skating Rinks

Refrigerated
Pipe Lines

COMMERCIAL REFRIGERATION & AIR CONDITIONING

OCTOBER 1955 • VOLUME 12 • No. 10

IN THIS ISSUE

FEATURE ARTICLES

- 36 **YOU CAN QUALIFY YOUR SALESMEN . . .** for the type of work they're going to do by putting them through an intensive training course. Here's how one firm does it.
- 38 **LAYOUT FOR SELF-SERVICE MEAT DEPARTMENTS . . .** can be an important factor in the food market profit picture. Here are some practical pointers any dealer can use.
- 40 **HOW TO GET CREDIT INFORMATION . . .** while you're making the sale is a trick many salesmen never learn. It's easy if you go about it this way.
- 42 **YEAR AROUND USE OF COOLING TOWERS . . .** on commercial refrigeration equipment, without danger of freeze-up, is possible with the use of indoor storage tanks.
- 43 **THREE HEADS ARE BETTER THAN ONE . . .** when it comes to planning store layouts. A Dayton, Ohio, dealer makes good use of this simple fact.
- 44 **HOW TO USE AN APTITUDE TEST . . .** in hiring salesmen. This article points out what such tests can't do, as well as what they can accomplish.
- 46 **PRINTED FORMS CAN STOP THOSE PROFIT LEAKS . . .** if they are properly designed to meet your specific needs. This dealer's experience is a case in point.

Air Conditioning Section

- 83 **YOU CAN USE CENTRAL STATION WATER CHILLING . . .** to handle the problem of air conditioning motel rooms where local ordinances forbid recirculation of air.
- 84 **SELLING AUTO AIR CONDITIONERS . . .** can be a full-time business in some parts of the country. Witness the case of this Fort Worth, Texas, firm.
- 85 **"STAR" CUSTOMERS STIMULATE SALES . . .** for this Florida dealer who makes his floor models do a selling job for him.
- 86 **HOW TO SELL THE REPLACEMENT MARKET . . .** is something every air conditioning salesman should know. Here is a practical dollars-and-cents approach to this problem.
- 90 **COLLECTING PAST-DUE ACCOUNTS . . .** is a problem every dealer or contractor has to face, but using unwise methods can prove to be a costly experience.
- 91 **SOLUTION: ROOM COOLERS . . .** Here's the story of how the management of a large office building found these units to be the answer for a major modernization problem.

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DEPARTMENTS

About People	22	New Products	64, 95
BTU's	35	Applications Manual	106
Commercial Sales News	48	Here's How	111
Contractor News	55	Opportunities	117
Useful Literature	61, 92	Index to Advertisers	118



for
STAY-PUT

jobs...

AEROVOX MOTOR- STARTING Capacitors

Sound profits and stay-put repairs go together. That's why the majority of refrigeration and motor repairmen choose Aerovox motor-starting capacitors. They know that Aerovox pioneered this particular capacitor application; that Aerovox continues to supply the outstanding data; that Aerovox offers universal types and exact-duplicate types for every standard capacitor-start motor; and that Aerovox replacements are immediately available anywhere through local suppliers. Don't settle for less!

GET THE FACTS

Write us or ask your supplier for the latest Aerovox motor-starting capacitor manual. And count on Aerovox for the right capacitor for the right job, every time.



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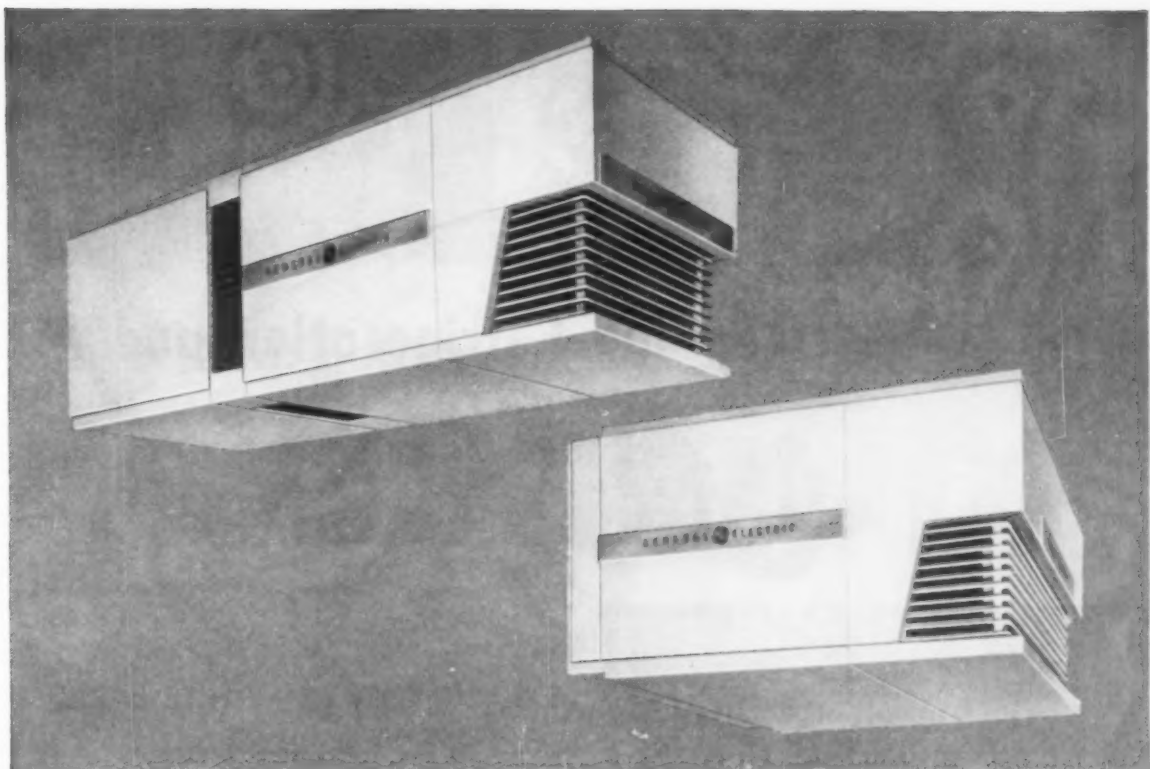
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GENERAL ELECTRIC ANNOUNCES New type of Packaged Air Conditioner

**Ceiling-mounted units take no floor space...bring
entirely new profit opportunities to G-E dealers**

These compact, new G-E units can be fastened to the ceiling—or mounted on a shelf. They give all the benefits of modern air conditioning without taking up a single foot of floor space. New profit opportunities for G-E dealers in this idea!

Air-cooled and water-cooled models. Where water is a serious problem, G-E air-cooled units, in 3 and 5 ton sizes, are an ideal answer...use no water, require only air and electricity. G-E water-cooled units are available in 3, 5 and 7½ ton sizes. All units may be equipped with coils for winter heating.

All-in-one construction. These models are entirely self-contained. No remotely located parts to cut efficiency or cause refrigerant leaks. Motor, compressor and condenser are sealed by flame to keep dirt and moisture out, vital refrigerant and oil in.

And G.E.'s famous 5-year warranty covers the entire refrigeration system.

For full information about the extra advantages of G-E Packaged Air Conditioners, call your nearest G-E Distributor or write: C. J. Rigby, General Electric Co., Commercial and Industrial Air Conditioning Dept., 5 Lawrence St., Bloomfield, N. J.

Packaged AIR CONDITIONERS

Progress Is Our Most Important Product

GENERAL  ELECTRIC

APPR

Leading Refrigeration and Air genetron®



Look at the stringent manufacturing specifications listed here for the principal "Genetrons." Note their exceptionally low moisture content. For example, "Genetron" 12 and "Genetron" 141 are so dry they contain less than ten parts of water per million parts of refrigerant. That's moisture equal to only one thousandth of one percent (0.001%).

The overall purity of "Genetrons" is equally good. See how low they are in non-condensable gases and low boiling impurities. And, remember the quality of current production consistently surpasses even these specifications. No wonder so many leading manufacturers now prefer "Genetrons" as original charge for their equipment!

genetron 12—WHITE LABEL

DICHLORODIFLUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0010
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Non-condensable gases (gases insoluble in perchloroethylene)—vol. % in vapor phase, max. . .	1.5
Boiling pt. at 760 mm. Hg. °F.	-21.6
Boiling range °F (to 85% pt.), max.	0.9

genetron 141—GREEN LABEL

MONOCHLORODIFLUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0010
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Non-condensable gases (gases insoluble in perchloroethylene)—vol. % in vapor phase, max. . .	1.5
Boiling pt. at 760 mm. Hg. °F.	-41.4
Boiling range °F (to 85% pt.), max.	0.9

genetron 11—ORANGE LABEL

TRICHLOROMONOFUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0015
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Boiling pt. at 760 mm. Hg. °F.	74.7
Boiling range °F (to 85% pt.), max.	0.5

OVER!

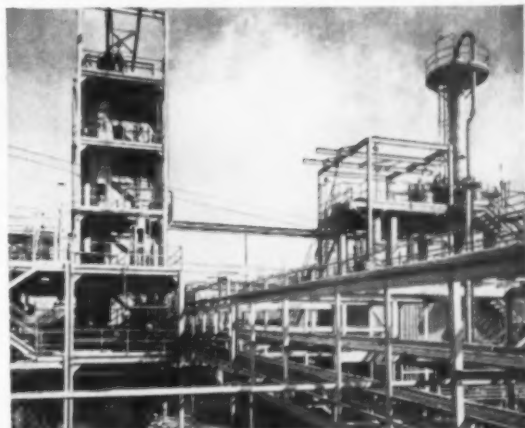
Conditioning Manufacturers All Approve...

Super-Dry Refrigerants

Few products have ever undergone such exhaustive examination as "Genetron" Refrigerants. Leading refrigeration and air conditioning manufacturers have checked and rechecked them intensively . . . proved for themselves that "Genetrons" meet or surpass their most exacting specifications for fluorinated hydrocarbon refrigerants.

Yes . . . in every case . . . "Genetrons" have been certified for the original or replacement charge in America's finest equipment. That's because they have been proved to be—

- ✓ **Super-Dry**—guaranteed exceptionally low moisture content.
- ✓ **Non-toxic, non-flammable, stable, safe.**
- ✓ **Non-corrosive** to standard equipment materials.
- ✓ **Critical and freezing points** well outside range of operating uses.
- ✓ **Solvent action** on oil helps prevent solidification or congealing of lubricant.
- ✓ **Miscible with oil**; aid in lubrication of equipment.
- ✓ **Identical and interchangeable** in all respects with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer meeting the same high standards.



READY SOON:

In addition to its expanded "Genetron" production center at Baton Rouge, La., General Chemical will soon have large new "Genetron" facilities in operation at Danville, Ill. These, plus others in the industry, assure refrigerant capacity to meet all needs for the foreseeable future.

Basic Chemicals for American Industry

GENERAL CHEMICAL DIVISION

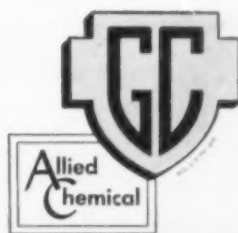
ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

See your refrigeration wholesaler

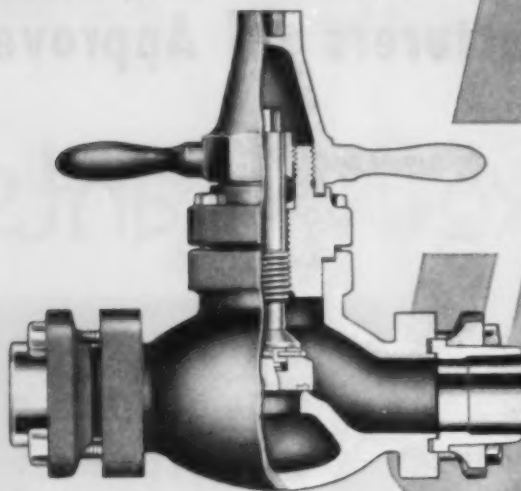
Circle No. 7 on Reader Service Card

& AIR CONDITIONING • OCTOBER, 1955



FIVE TYPES OF CONNECTIONS IN HENRY

SEMI-STEEL WING CAP VALVES



F.P.T.
In Valve Body
1/2" thru 2 1/2"



O.D. Solder
Brass Adapter
and Steel Flange
1 1/2" thru 5 1/2"



Steel Butt Weld Adapter
and Steel Flange
1 1/4" thru 5"



One Piece F.P.T. Flange
1 1/4" thru 6"



One Piece Slip-on Weld Flange
1 1/4" thru 6"

MAKE INSTALLATION EASY

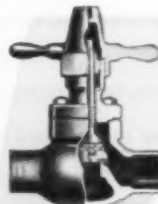
Specify Henry Wing Cap Valves with their wide choice of end connections and your installation costs will always be low.

For example, steel pipe can be screwed directly into the valve body on sizes thru 2 1/2", or it can be screwed into one piece F.P.T. flanges on sizes 1 1/4" thru 6". It can also be butt welded to separate steel adapters with companion flanges or used with one piece slip-on weld flanges in the same larger size range. If copper pipe is used, separate brass O.D. solder adapters with companion flanges permit soldering or brazing.

BRONZE BODY VALVES all have O.D. solder connections.

Henry offers you other features as well: Full capacity and unrestricted flow—patented self-aligning stem disc that will not rotate—resilient packing—back-seating design which permits repacking under pressure—a gasketed wing cap with socket which, when inverted, can be used to operate valve.

Your favorite wholesaler has a complete line of Henry Wing Cap Valves or can get them for you.



BRONZE ALLOY WING CAP VALVES

Made of bronze alloy to meet government specifications. Compact design

—relatively light weight. Bolted bonnet construction and heavy wall bodies for maximum strength and safety. O.D. solder connections machined in valve body. Size range: 3/8" thru 4 1/8" globe type; 3/8" thru 3 1/8" angle type.

HENRY VALVE CO.

MELROSE PARK, ILLINOIS

(Chicago Suburb)

Cable: Hevalco, Melrose Park, Illinois

Valves, Driers, Strainers, Control Devices and Accessories for
Refrigeration, Air Conditioning and Industrial Applications.





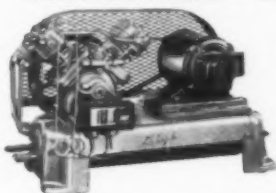
Serves America's Refrigeration Needs with

DEPENDABLE UNITS and SYSTEMS

★ A complete line of condensing units

DISTRIBUTED — WAREHOUSED — SERVICED NATIONALLY

Hundreds of Lehigh BLU-COLD jobbers offer in-stock service of modern Lehigh units and genuine factory replacement parts. Into these units go the top engineering of the industry today — the finest construction and materials — the most critical and reliable ASRE ratings.

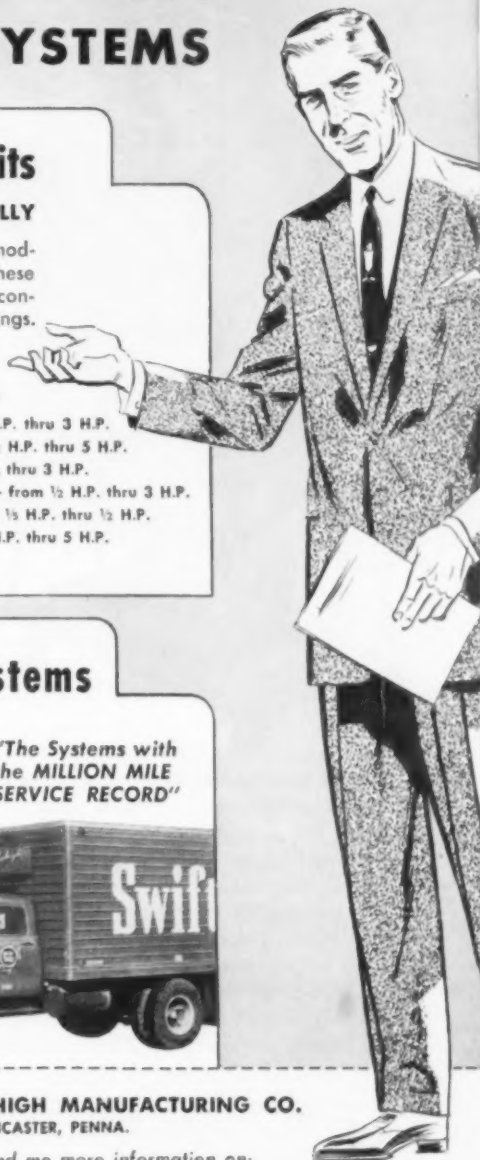


For latest catalogs and prices see your nearest Lehigh BLU-COLD jobber or mail coupon below.

Available are:

Packaged, Standard and Heavy Duty

- AIR COOLED UNITS — from 1/4 H.P. thru 3 H.P.
- WATER COOLED UNITS — from 1/2 H.P. thru 5 H.P.
- AIR-WATER UNITS — from 1/2 H.P. thru 3 H.P.
- AUTOMATIC DEFROST SYSTEMS — from 1/2 H.P. thru 3 H.P.
- HERMETIC SEALED UNITS — from 1/8 H.P. thru 1/2 H.P.
- BARE COMPRESSORS — from 1/4 H.P. thru 5 H.P.



Refrigerated Truck Systems

This specialized division of Lehigh is represented Nationally by leading CENTRAL AUTOMOTIVE DISTRIBUTORS with automotive and truck body shops and facilities for installing and servicing complete refrigerated truck systems. Their motto is "Keep the fleets cool and moving!" — and they are busy doing just this for many famous dairies, meat processors, growers and others who ship or deliver in refrigerated trucks. Lehigh offers a wide variety of systems for retail, wholesale, city, suburban and over-the-road uses — all powered by special, heavy-duty, compressors and components made specifically by Lehigh for this purpose.

For catalogs and name of nearest Lehigh CENTRAL AUTOMOTIVE DISTRIBUTOR write direct to the factory or use coupon below.

"The Systems with
the MILLION MILE
SERVICE RECORD"



LEHIGH MANUFACTURING CO.
LANCASTER, PENNA.

Send me more information on:

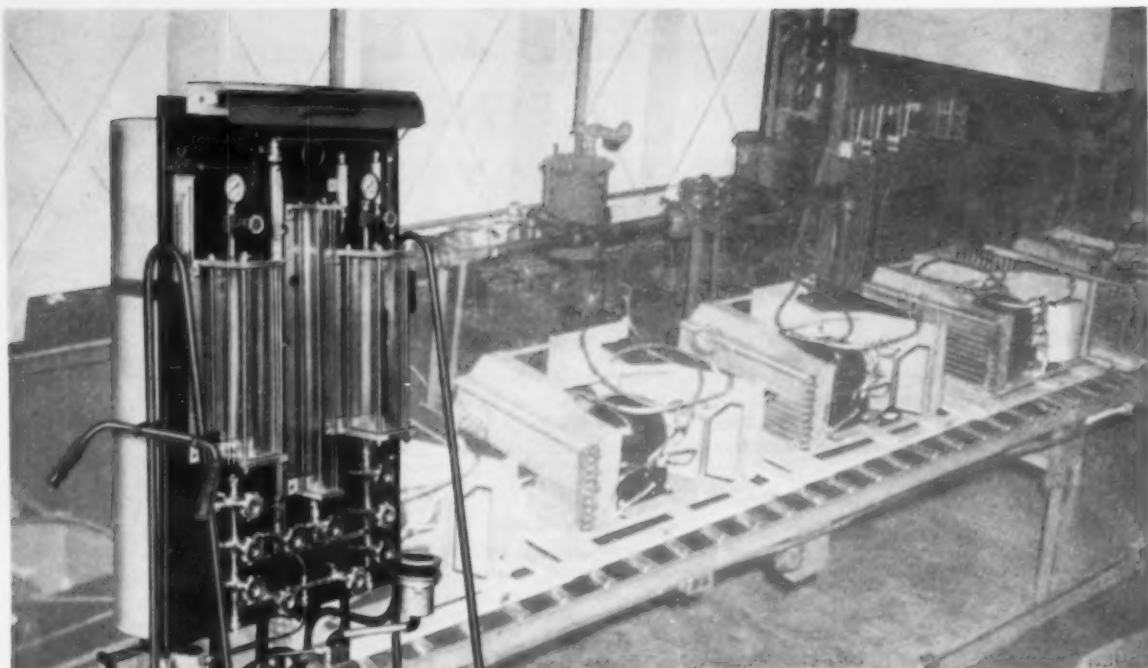
- ☐ REFRIGERATED TRUCK SYSTEMS
- ☐ OPEN TYPE CONDENSING UNITS
- ☐ HERMETIC CONDENSING UNITS

Name

City State

Lehigh Manufacturing Co.
DIVISION OF LEHIGH, INC.

plant — LANCASTER, PENNA. • export — 13 E. 40th St., N. Y.



PRODUCTION-LINE PERFORMANCE from this Portable Vacuum Service Station

The Kinney Portable Evacuating and Charging Service Station is a production-line unit in miniature . . . service shops can now duplicate the exacting production-line charging specifications for refrigeration or air conditioning units set by the manufacturer. The integral design of this unit—with its Kinney Model KC High Vacuum Pump, Freon cylinder holder, calibrated charging board, and vacuum manifold—assures proper, leak-proof functioning. There's no fiddling or fumbling, no loss of valuable shop time . . . the Kinney Service Station is ready at all times to do its work quickly, accurately, profitably.

Simple, compact, reliable, this unit is for precision charging of refrigerants, such as Freon 12

and Freon 22, and, when desired, their supplementary liquids, such as oil and alcohol. The ability of the Kinney High Vacuum Pump to create the high vacuum required for efficient dehydration, degassing, and leak testing eliminates costly waste of Freon required by repetitive flush-charging methods.

Find out how it pays to get production-line performance on your refrigeration service jobs. Send coupon today for further information or consult the competent vacuum specialists in our district offices in Boston, New York, Philadelphia, Cleveland, Chicago, St. Louis, and Los Angeles. Complete inventory and shop facilities are available in Los Angeles.

Visit us at the AIRSERCO Manufacturing Co., Booth #634 at the 9th Exposition of the Air-Conditioning and Refrigeration Industry. Atlantic City, Nov. 28 — Dec. 1.

write

today

KINNEY MFG. DIVISION
THE NEW YORK AIR BRAKE COMPANY

3610 WASHINGTON STREET • BOSTON 30 • MASS.
INTERNATIONAL SALES OFFICE, 98 WEST ST., NEW YORK 6, N.Y.



Please send Brochure describing Kinney Portable Service Station and accessory items.

Name _____

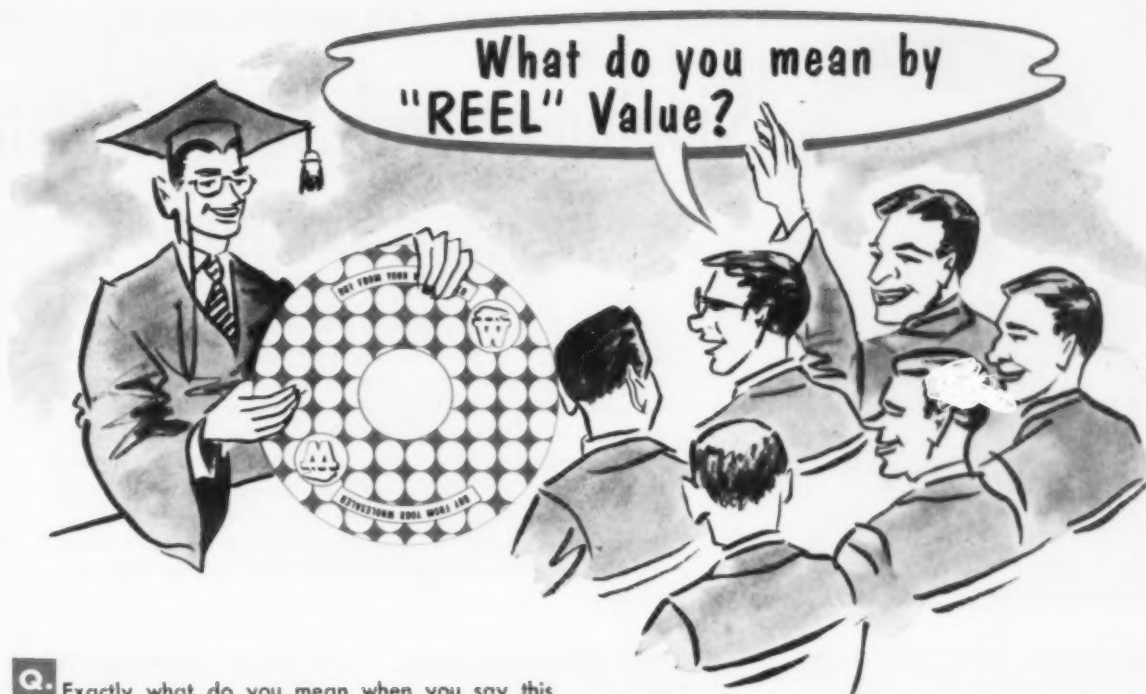
Company _____

Street _____

City _____ State _____

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OCTOBER, 1955 • COMMERCIAL REFRIGERATION



Q. Exactly what do you mean when you say this new Wolverine carton has "reel" value?

A. Simply this. By tying-in or holding the tube at one end and rolling the carton back—it acts as a reel—lets the tubing come from the roll in a straight, kink-free line.

Q. That makes sense. Can it help me in any other way when I'm on an installation job?

A. You bet it can. Because it's round, this carton can be rolled—just like a hoop. It really cuts handling time. There's a convenient center hole for easy over-the-arm or shoulder carrying.

Q. You say this carton isn't destroyed by opening. How come?

A. To open the carton all that is necessary is a pull on a gummed tape which encircles the outer rim. The carton is then open with the tube ready to use. Unused tube remains in the carton—protected against damage and dirt.

Q. Supposing I have two or three different sizes or types of tube in my truck. Do I have to open them all to get the one I want?

A. No sir! Reversed nomenclature makes content identification easy from any angle. The carton also carries approved color coding.

Q. Do different types of tube come in this new round carton?

A. They sure do. Just name the type you need. There's Wolverine copper water tube, copper refrigeration tube and copper automotive tube. And there's one thing for sure. In each case, it's the same high quality Wolverine tube you have come to depend on—always clean and dry and easy to bend.

Q. It sounds terrific. Where can I buy this new carton?

A. Wolverine tube is available through wholesalers only. Next time you visit your wholesaler insist on Wolverine's *flat roll of tube that rolls*.

WOLVERINE TUBE, 1405 Central Avenue,
Detroit 9, Michigan.

Buy From Your Wholesaler



WOLVERINE TUBE

DIVISION OF CALUMET & HECLA, INC.

*Manufacturers of Quality Controlled Tubing
and Extruded Aluminum Shapes*

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES
EXPORT DEPT., 12 E. 40TH ST., NEW YORK 18, N. Y.

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WORTHINGTON DEALERS ARE SUCCESSFUL DEALERS!



"Signing up with Worthington was a good move"

... says Richard H. Catlett, President of the Catlett-Johnson Corporation, Virginia's leading air conditioning and refrigeration dealers. Mr. Catlett goes on: "In the eight years we've had the Worthington franchise, our dollar volume has more than doubled. Previously, we were identified with another nationally advertised brand. The decision to change was not easy, but the results have been very gratifying. We've expanded our business as a result of Worthington's unrestricted franchise and complete range of products. And Worthington is one outfit that never competes with its dealers."



RALPH E. ORCUTT, CATLETT-JOHNSON'S SALES MANAGER SAYS: "Worthington promotion material is second to none — it helps us do a bang-up job. I'm enthusiastic about the way the Worthington people — and the sales aids they create — help us locate prospects . . . and turn them into sales. Worthington's staff of merchandising experts have given us a big hand in the development of a sound dealer program. And Worthington's national reputation helps a lot."



JOHN C. HILDEBRAND, JR., VICE PRESIDENT & CHIEF ENGINEER, SAYS: "The fact that I can rely on Worthington's published engineering data and ratings saves me many hours of engineering time. And Worthington's complete line of equipment allows me to select the units I know will be best for the job. Reciprocating and central station systems, year-round residential units, packaged air conditioners, add-ons — Worthington's got everything!"



J. TABB MEYER, JR., OPERATIONS MANAGER, SAYS: "Worthington units are extremely compact, well-designed, and easy to install almost anywhere. You can see the equipment is built with the serviceman in mind — easy accessibility cuts down our maintenance and service time. And Worthington's million-dollar compressor just can't be beat for day-in, day-out reliability. On the off-chance that something may go wrong, Worthington's five-year warranty takes care of it."

Catlett-Johnson's story — like so many others we've received — adds up to this: Worthington dealers are *successful* dealers. And there are plenty more reasons why. Lots of them are mentioned in Worthington's new monthly publication, "The Merchandiser". Write for it today. Worthington Corporation, Air Conditioning and Refrigeration Division, Section A.5.37-C, Harrison, N.J.

A.5.37

WORTHINGTON



THE BEST FRANCHISE . . . THE MOST COMPLETE LINE

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OCTOBER, 1955 • COMMERCIAL REFRIGERATION



The pink color in the Dry-Eye Connector window changes to blue when T-Flo Cartridge removes excessive moisture.



Note path of refrigerant through uniformly round pellets of Andrite in the T-Flo Dry-Eye Cartridge.

Dry-Eye System tells at a glance if refrigerant is wet or dry



Once the Ansul Dry-Eye System is installed you can replace the T-Flo Cartridge without breaking the line.

Takes the guesswork out of refrigerant servicing . . . controls moisture, removes acid

No more guessing—now you can tell scientifically if the refrigerant is *wet* or *dry*. If the Dry-Eye Connector window shows *blue*, the equipment is in a safe operating condition. If the window shows *pink*, excessive moisture is present. To remove the moisture, simply change the T-Flo Dry-Eye Cartridge. That's all there is to it.

Andrite, the drying agent used in the T-Flo Dry-Eye Cartridge, is superior to all other popular desiccants in the deep drying range. This is the range which determines the quantity of desiccant to be

used. As for acid removal, Andrite will pick up 4.5% of its weight in acid when completely saturated with water. The extraordinary drying capacity of the T-Flo Dry-Eye Cartridge allows you, in many cases, to install smaller driers than the ones you are now using.

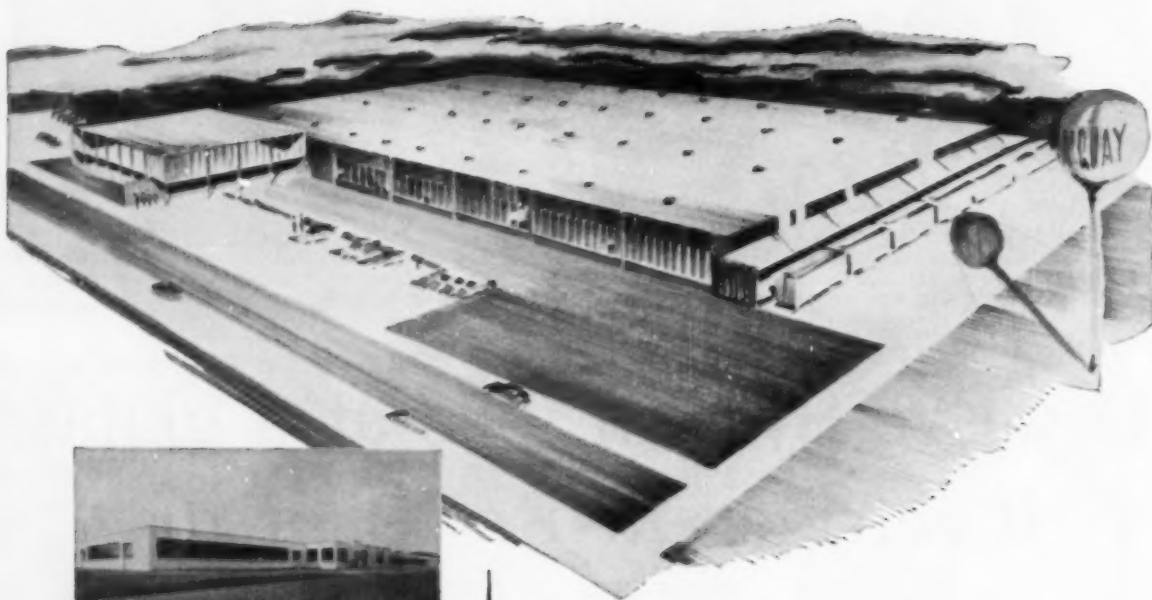
Test-try the Ansul Dry-Eye System on one of your "problem" units. See if it doesn't make servicing easier, more profitable. Contact your local Ansul wholesaler for a supply of Dry-Eye Systems. **ANSUL CHEMICAL COMPANY**, Dept. D-22, Refrigeration Div., Marinette, Wisc.



ANSUL

McQuay...

announces opening of its
new plant in Grenada, Mississippi



Faribault Plant
4th St. and Park Ave.
Faribault, Minnesota



General Offices and Warehouse
1600 Broadway St. N.E.
Minneapolis, Minnesota

You're invited to attend our formal opening on October 3

In the 167,000 square feet of space in our new Grenada, Mississippi, plant we have installed the most up-to-date machinery and equipment known to the industry. A large part of McQuay's Heating, Air Conditioning, and Refrigeration Coils as well as unitary equipment will be made here.

These new facilities enable us to offer you faster, more efficient service in the manufacture and distribution of the high quality products for which the name McQuay is so well and favorably known throughout the country.

Mark it down on your calendar now, October 3, for a visit we know you'll find a pleasant and profitable experience. Dedication ceremonies will commence at 2:45 P.M.

Write McQuay Inc. for
engineering assistance
on any coil problem.

McQuay INC.



AIR CONDITIONING
REFRIGERATION
HEATING

1643 Broadway St. N. E., Minneapolis 13, Minnesota

Circle No. 14 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION



Johns-Manville announces

a *Flush Clip* for impaled insulation

Improves appearance Won't tear vapor barrier

Safeguards personnel

HERE'S HOW IT WORKS



1. Mechanic depresses insulation exposing tip of pin.



2. Pin is engaged by locking holes on clip.



3. Clip is pushed home flush with insulation surface.



4. Vapor barrier (where necessary) is easily applied over clip.

Another revolutionary development introduced by Johns-Manville

Now . . . you can insure a smooth and unbroken finish on air conditioning ducts. For this new *Flush Clip*, developed and produced by the Graham Manufacturing Corporation of Royal Oak, Mich., firmly secures impaled insulation without sacrificing eye appeal or impermeability of vapor barrier.

Plant personnel will appreciate the neat, smooth appearance unbroken by ugly protuberances. The Graham® *Flush Clip* also provides an excellent surface for decorative or identification painting. Insulation engineers will be able to furnish a snugger fitting, more efficient job with an unbroken vapor

barrier that is easily applied. Installation crews will find their work simplified and speeded—with no trimming and cutting required—and a greatly reduced injury hazard from sharp, jagged projections.

Johns-Manville's Industrial Contract Department has worked closely with the Graham Manufacturing Corporation in field-testing the Graham *Flush Clip* on industrial installations. Used in conjunction with the Graham Insul-Pin System, it has been proven to operate ideally with J-M Spintex Insulation, plain and faced. For more information and samples, contact your nearest J-M Insulation Contractor. Or write Johns-Manville, Box 60, New York 16, New York. In Canada, Port Credit, Ontario.



Johns-Manville *first-in* **INSULATION**

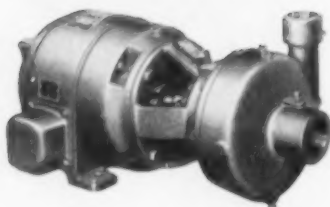
MATERIALS • ENGINEERING • APPLICATION

Circle No. 88 on Reader Service Card

QUIETER!

GET RID OF NOISE
TROUBLE IN YOUR
COOLING INSTALLATIONS
...NEXT TIME BUY A

B & G SERIES 1522 CENTRIFUGAL PUMP

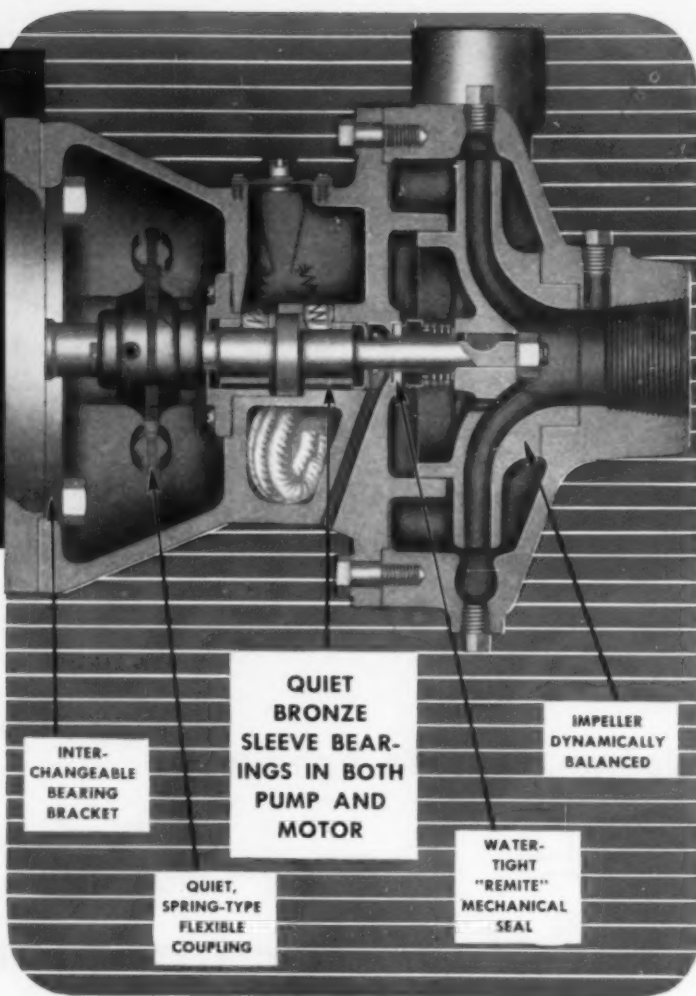


This pump is *really quiet*...because both pump and motor are equipped with long bronze sleeve bearings...and because of the noise-dampening flexible spring-type coupler.

The 1522 offers an outstanding array of other features for dependable, low-cost operation. The "Remite" Mechanical Seal, for example, ends leakage troubles. It's self-lubricating—harder than glass—wear-proof. The impeller is dynamically balanced for smooth, vibration-less operation...the entire bearing bracket assembly, including shaft and sleeve bearing, is interchangeable. Servicing is simple—the 1522 separates into three parts.

All these *plus* values cost no more—the B & G 1522 Pump is *competitively priced*! It is available as an all-iron, bronze-fitted, all-bronze or a stainless steel unit, with capacities to 150 GPM, heads to 115 ft. Send for Catalog.

A complete line of refrigeration and air conditioning components... Centrifugal Pumps, Evaporators, Condensers, Liquid Receivers, and Heat Exchangers.



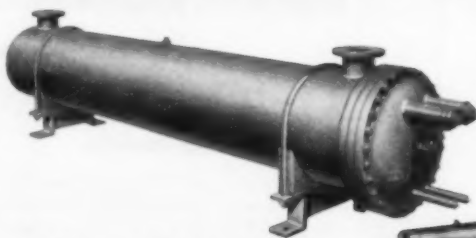
INTER-
CHANGEABLE
BEARING
BRACKET

QUIET
BRONZE
SLEEVE BEAR-
INGS IN BOTH
PUMP AND
MOTOR

IMPELLER
DYNAMICALLY
BALANCED

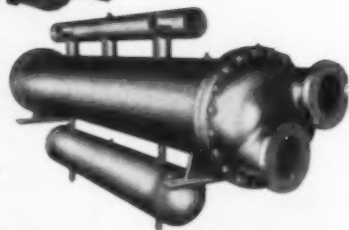
QUIET,
SPRING-TYPE
FLEXIBLE
COUPLING

WATER-
TIGHT
"REMITE"
MECHANICAL
SEAL



Get the facts now on
the latest in refrigeration and air conditioning equipment.

B & G precision-built Evaporators and Condensers offer time-tested design—rugged construction—scrupulous workmanship—all combined to provide top performance over a long service life. These units are built to ASME Code U-69 regulations and are certified by Hartford Steam Boiler and Inspection Service. Send for catalogs with new simplified engineering and selection data.



BELL & GOSSETT

C O M P A N Y

Dept. EB-45, Morton Grove, Illinois

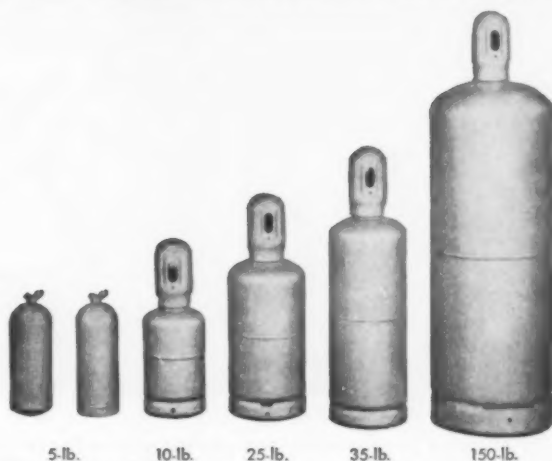
Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto, Canada

Circle No. 19 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION

**DON'T
SETTLE
FOR LESS**

use
Prest-O-Lite
Trade-Mark
**CYLINDERS FOR
REFRIGERANTS**



- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. WRITE TODAY for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.


MADE BY

Linde

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

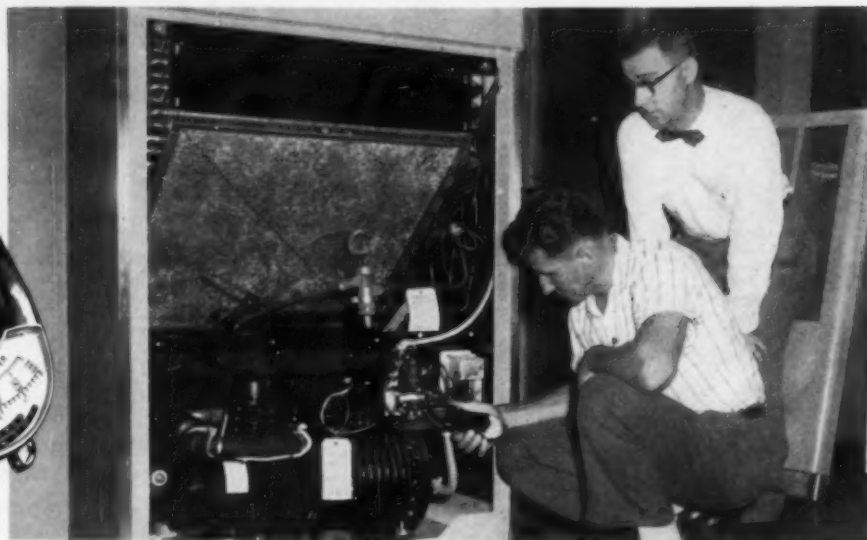
In Canada: LINDE AIR PRODUCTS COMPANY

Division of Union Carbide Canada Limited, Toronto

Circle No. 17 on Reader Service Card

**"I've seen AMPROBE help
our servicemen do a better
job more efficiently..."**

*says S. J. Janczarek, Service Engineer for Refrigeration Service Inc.
FRIGIDAIRE Sales and Service, Detroit, Michigan*



"We've found the **AMPROBE SNAP-AROUND VOLT-AMMETER** to be the best type of equipment available to quickly analyze electrical troubles. We have equipped all our commercial servicemen with the Amprobe as standard equipment for their tool kits. Amprobe enables our servicemen to do a better job more efficiently than any other equipment we have used,"
S. J. Janczarek of Refrigeration Service Inc.

Amprobe eliminates guesswork—measures voltage and current instantly with instrument accuracy—and without shutting down equipment. There's an Amprobe for every job, every budget: from 10 amp and 250 volts capacity up to 1200 amp and 600 volts; from \$19.85 to \$67.50. See them at your jobber's today.

AMPROBE

world's
fastest-selling
snap-around
volt-ammeter

recommended as standard testing equipment by America's leading service managers.

*mail
coupon
for free
service
bulletins*

PYRAMID INSTRUMENT CORP.
Dept. CRA-105, Lynbrook, N. Y.

Please send me the Amprobe service bulletins checked below:

- ☐ Know your UL wiring standards for room units
☐ Trouble-shooting electric motors
☐ 14 ways a volt-ammeter can boost your service profits

NAME _____

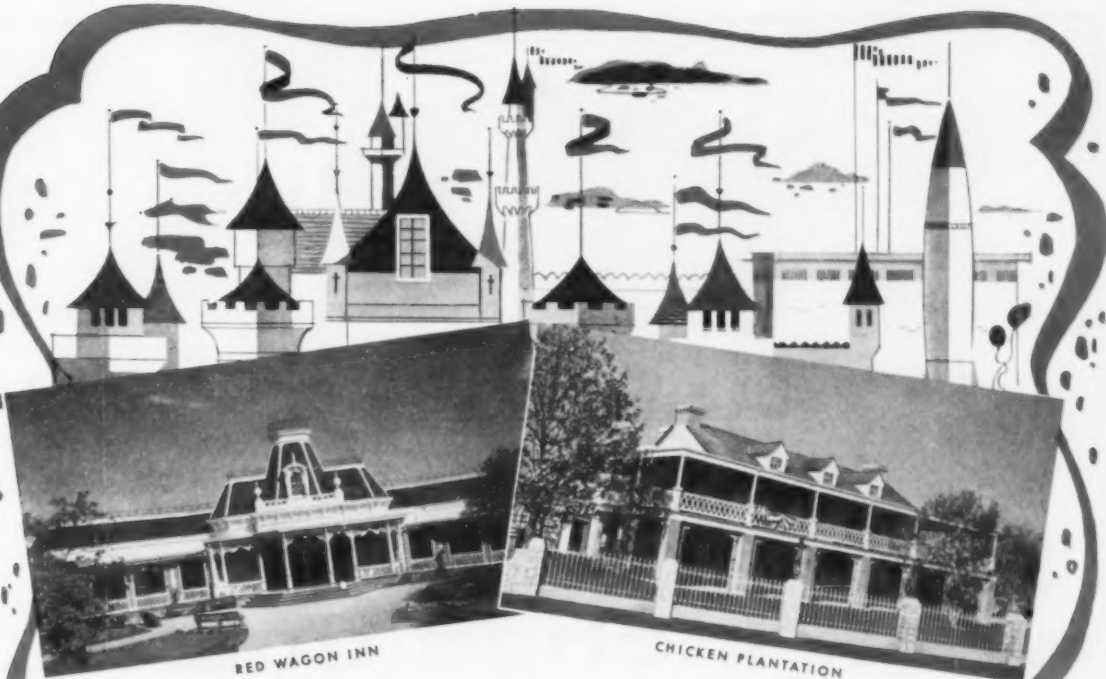
ADDRESS _____

COMPANY _____

CITY _____ ZONE _____ STATE _____

Circle No. 18 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION



The Cold Facts About Disneyland

IT TOOK a lot of down-to-earth planning to make this fabulous land of fantasy, a reality. Take, for example, the Red Wagon Company's two restaurants, the *Red Wagon Inn* and the *Chicken Plantation*. Behind their gay '90s facades modern refrigeration keeps food in perfect condition. Of course (and this is the point of the story), the refrigeration is supplied by RECOLD Water Defrost Coils.

Fast, simple, dependable RECOLD Water Defrost Coils are used for every type of low temperature application from the world's largest refrigerated warehouse to a reach-in refrigerator. Easy-to-install RECOLD Water Defrost Coils do not complicate the refrigeration system or cause service problems. Defrost in four or five minutes... *automatically*. You can be sure with RECOLD Water Defrost Coils. Be sure. Specify RECOLD Water Defrost Coils.

Recold Water Defrost applies the heat where the frost is... on the outside of the coils. Cutaway view shows how flowing tap water melts frost away.



AUTOMATIC

Recold

WATER DEFROST COILS



Refrigeration Engineering, Inc.

7250 East Slauson Avenue
Los Angeles 22, California

Write for
illustrated
folder

REFRIGERATION ENGINEERING, INC. Dept. K-2

7250 East Slauson Avenue
Los Angeles 22, California

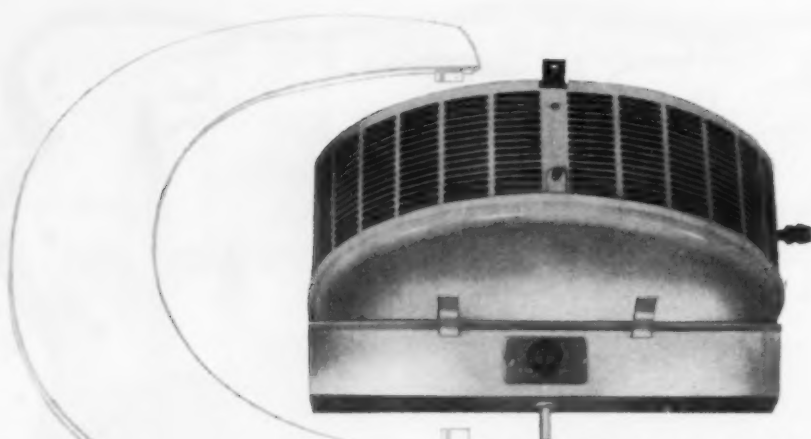
Please send illustrated folder on the Recold Water Defrost Coils

NAME _____

FIRM _____

ADDRESS _____

(or attach to your letterhead)



INSTALL A NEW
TENNEY Jr. TJ UNIT COOLER
FOR MAXIMUM COOLING POWER

when inches count...



- Now, a carefully scaled down version of the famous Tenney-Engineered TW Half-Round Unit Cooler... designed for every refrigerated enclosure where space is a factor.

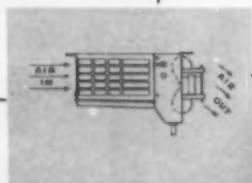
- Here, packed into a matter of inches is terrific cooling ability. The Tenney Jr.'s unique, modern design allows full use of surrounding shelves and assures consistent temperatures... louvered grille for controlled airflow.

- Supplied with integral ceiling or back wall mounting brackets, Tenney Jr. Units snap into place fast... remove one thumb screw, slide out the pan and every part is at your finger tips... you never remove any permanent lines to service.

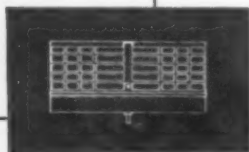
- For the ultimate in heat transfer efficiency TJ Jr. Units utilize exclusive Tenney "Facetized"* fin coil sections... available in capacities from 780 to 4,050 B.T.U./HR.



EASY-TO-INSTALL



EASY-TO-SERVICE



Full performance and
application data on new Tenney Jr. TJ
Unit Coolers is given in
Bulletin 110-55. Write Department
CR-10 for your copy.



Tenney
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, N. J. Plants: Union, N. J. and Baltimore, Md.

*Patented

Engineers and Manufacturers of Refrigeration and Environmental Equipment

Circle No. 20 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION



"... and not only do we have two swimming pools, six tennis courts and a golf course... we have White-Rodgers Controls on our air conditioning system!"

... Can't blame him for bragging a little about those White-Rodgers controls. After all, their accuracy and dependability will never let him down.

The satisfaction of your customers... and the success of your installations... depends on the controls you use. To protect your reputation, always specify White-Rodgers.



WHITE-RODGERS *Controls*

FOR HEATING • REFRIGERATION • AIR CONDITIONING

ST. LOUIS 6, MO.
TORONTO 8, ONTARIO

ABOUT PEOPLE

Raymond B. Hocht has been named refrigeration representative for the Texas-Oklahoma territory and **W. O. (Doc) Johnson** of Tennity & Co., Los Angeles, has been appointed sales representative in Colorado, Nevada,



Utah, and Arizona for McQuay, Inc. Hocht, who has been in the refrigeration and air conditioning field since 1940, will headquarter in Dallas. Johnson, who has been in the refrigeration business for the past 20 years, is commercial sales manager for Tennity & Co.

George Kelley has been appointed manager of heating and air conditioning by Day & Night Div. of Carrier Corp. His new duties will consist of organizing and disseminating information from the air-conditioning and heating engineering staff at Day & Night. Kelly's previous position was that of chief sales engineer for a California wholesale distributor.

Charles C. Rion has been named sales manager for the New England states and the state of New York by Billy Case and Cooler Co. Rion was formerly sales manager of McCall Refrigerator Corp., and has also represented manufacturers of commercial refrigeration in the east.



Regional sales assignments involving two sales managers, two district managers, and three field representatives have been made by L.O.F. Glass Fibers Co. **Thomas L. Carver** has been appointed sales manager of the eastern region with headquarters in New York city, and **John B. Banks** has been named sales manager of the central region with headquarters in Detroit. Carver had previously been New York district manager for the Fiber Glass Div. of L.O.F. and Banks had been Philadelphia regional sales manager for Glass Fibers Inc. before their recent merger to form L.O.F. Glass Fibers Co. The two district assignments were **Arthur S. White** and **Norman C. Plass**, who have been named district managers at St. Louis and Minneapolis, respectively. Field representatives assigned were **Edward A. Turner**, Chicago; **James T. Gander**, Milwaukee; and **Malcolm C. Brown**, Kansas City, Missouri.

E. L. Hinchliff, general sales manager of Amana Refrigeration for the past 11 years, has relinquished this post to become Amana's special merchandising



E. L. Hinchliff J. A. Rishel, Jr.

consultant. Succeeding Hinchliff as general sales manager will be **J. A. Rishel, Jr.**, who has been with Amana since May of this year as a special representative. He was formerly general sales manager of Deepfreeze Appliance Div., Motor Products Corp.

Frank B. Wilder has been named chief engineer of W. W. McMillan & Co., Jacksonville, Fla., manufacturer of heat pump air conditioning units. Wilder has

previously been associated with J. J. Nesbitt, Inc., and with the Brazilian office of Carrier Corp.'s International Div.

Philip C. Kosch has been appointed sales manager of the Bryant Div. of Carrier Corp. He will be responsible for administration of all Bryant product sales and field engineering activities, exclusive of regional and branch manager operations. Kosch has been in the industry since 1937, and has been Bryant's sales training manager since 1954. Earlier, he was manager of sales training for U. S. Machine Div. of Stewart-Warner Corp.



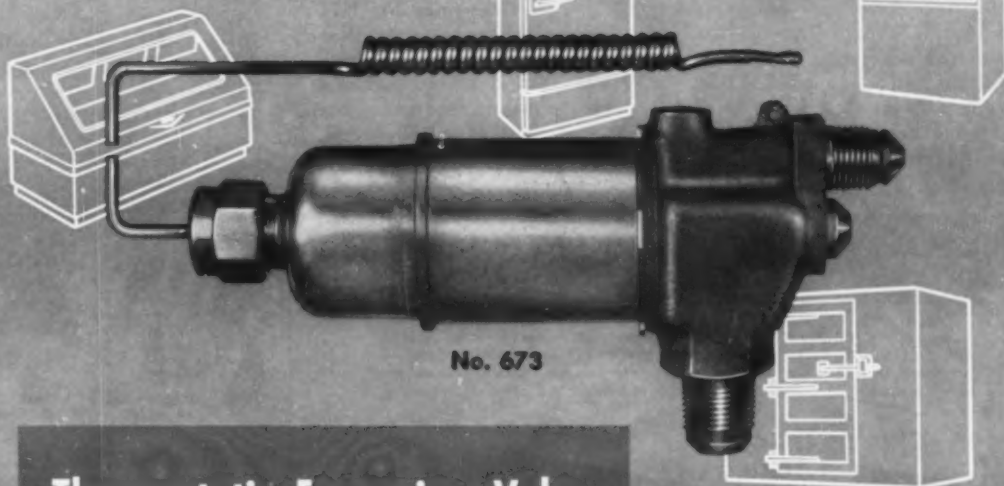
C. William Wright and **Dallas D. Whiting** have been appointed territorial representatives for Detroit Controls Corp. Both men have been assigned to the east-central regional office in Cleveland, under the management of Claude Cole. Wright will cover the northeastern section of Ohio and will be located in Cleveland. He had previously been with Burdett Oxygen Co. Whiting, formerly with Hiner Refrigeration Co., will be located in Ripley, W. Va.

Hascal Simmons and **Martin G. Raake** have been appointed national field sales managers of the heating and air conditioning div. of Coleman Co., Inc. Simmons will direct field sales operations on the company's central heating and air-conditioning equipment and Raake will head the sales organization for furnaces



H. Simmons

**ACCURATELY
PRE-ADJUSTED**



No. 673

Thermostatic Expansion Valve by Detroit Controls

Capacity: 1.3 to 3.6 tons Freon 12

THE STANDARD OF THE INDUSTRY! That's the reputation of this superior refrigeration valve. Its application is practically universal because of *constant superheat* regardless of suction pressure. The No. 673 Thermostatic Expansion Valve will control an air conditioning coil at high pressure, or an ice cream cabinet at low pressure.

The gas charged power element allows the evaporator to operate at 100% efficiency over a wide range of load conditions. It protects the motor against overload, assures quick balancing of the system when starting-up and gives instant, positive response.

Built to highest standards, No. 673 Valves are corrosion resistant and have long service life. Their broad range means a smaller inventory, less confusion.

Get full information and quick delivery from your Detroit Controls wholesaler. Write for Bulletin 84.

DETROIT CONTROLS CORPORATION manufactures a complete line for the refrigeration, air conditioning and heating industries.

DETROIT CONTROLS CORPORATION
8900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation



Representatives in Principal Cities • Canadian Representatives:
RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg.



AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

Serving home and industry

AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • WALL TILE • DETROIT CONTROLS • KEWAHNE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

Circle No. 22 on Reader Service Card

and heaters. Simmons and Raake had previously been managers of the company's Dallas and Chicago zone offices respectively.

Two additions to its eastern sales force have been announced by Aurora Pump Div. of New York Air Brake Co. **Charles S. Quillen** has been appointed sales engineer in the New Jersey territory and **Schuyler B. Sterling** will represent Aurora's newly es-

tablished domestic water system department, calling on eastern jobbers and distributors. Both men have had wide experience in the pump sales field.

C. Scott Hoepfner has been named branch manager of Peerless Pump Div., Food Machinery and Chemical Corp. and now heads the new factory sales office recently opened at 461 Market St., San Francisco. Hoepfner has

served since 1948 in sales engineering capacities with the Peerless organization.

Wm. R. Eichelberger has been appointed vice president and director of sales and **Walter A. Sharritts** has been named vice president in charge of manufacturing by Acme Industries, Inc.



W. Eichelberger



W. A. Sharritts

Eichelberger will direct sales and distribution of Acme's complete line and will coordinate activities of all sales divisions. Sharritts will continue to direct all manufacturing operations as he has during the past year. Prior to joining Acme, he was with General Motors Corp. and Carrier Corp.

J. A. Gilman has been appointed southern division merchandise manager by American Blower Corp. From his office in Atlanta, Gilman will provide sales and application engineering assistance to jobbers in major metropolitan areas throughout Florida, Georgia, Alabama and Tennessee. He will also select and establish dealerships in new territories. Gilman was formerly a member of the sales engineering staff of Shuman-York Co., distributors in Charlotte, N.C.

Henry S. Robinson has been appointed national sales manager for Fogel Refrigerator Co. Robin-

READY FOR THE TEST?

You're ready for *any* test if you have these Marsh "Serviceman" instruments. They all share in those commendable Marsh family traits — precision, ruggedness, honest quality, remarkable value. Notice the new models . . . and the new "Serviceman" Timer! Remember:

Your jobber stocks them

Serviceman

TESTING THERMOMETER



Handsome new model of standard, distant-reading testing thermometer. Tests to 40 below. Tube is now made permanently leak tight by Marsh "Conoweld" process. Recalibrator now in back of case for easy access.

Serviceman

DELUXE 3-SCALE



Like the standard model above, but has two added, color-differentiated scales showing corresponding pressures of Freon 12 and Freon 22. A beautiful instrument; a real time saver.

Serviceman

TIMER



Useful new arrival in "Serviceman" family shows total *running* time and total *elapsed* time of refrigerating unit on 24-hour dial. Easier to use and read than expensive recorder; costs far less. Two models cover all conditions.

MARSH INSTRUMENT CO.

Sales affiliate of Jas. P. Marsh Corporation
Dept. P, Skokie, Ill. • Marsh Instr. & Valve Co. (Can.) Ltd.
8407 163rd Street, Edmonton, Alberta, Canada

Serviceman

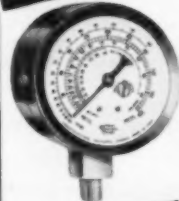
TESTING GAUGE SET



Great team of extremely accurate testing gauges in handsome polished brass cases with beveled glass crystals. Rings readily unscrewed for quick access to recalibrator. Note retard scale on compound gauge for close reading in important testing range.

Serviceman

4-SCALE TESTING GAUGE



Three extra color-differentiated scales in this accurate testing gauge show temperature corresponding to pressure for sulphur dioxide, methyl chloride and Freon. Ranges for all needs.

Serviceman

POCKET THERMOMETER



Highly accurate; easy to read; equipped with swivel to hang in refrigerator or clip in your pocket.

MARSH

Refrigeration Instruments

Circle No. 23 on Reader Service Card



Selling takes time— **Time** makes selling easy!



TO CLINCH more sales in less time, quote a *monthly payment*, not a *total cash price*. Many of your prospects need their working capital and usual lines of credit for current operations. No matter how much they need your equipment, they probably won't sign your order *now* unless you show them a convenient, practical way to pay. That's the COMMERCIAL CREDIT PLAN way. When can we tell you our story? Phone our office in your city or write: COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md.



COMMERCIAL CREDIT CORPORATION

A service offered through subsidiaries of Commercial Credit Company, Baltimore...
Capital and Surplus over \$180,000,000
...offices in principal cities of the United States and Canada.

son has been active in the commercial refrigeration industry for the past 27 years and was formerly vice president and sales manager of Ace Cabinet Corp.

Robert G. Duncan has been appointed district sales manager for western Massachusetts, Connecticut, and Rhode Island and **William M. Bolding** has been appointed Detroit representative

by Iron Fireman Mfg. Co. Duncan had previously been district sales manager for Timken Silent Automatic Div., and Bolding was a sales representative for Bohn Aluminum and Brass Corp.

F. S. Donnelly, formerly manager of the Pittsburgh office of Armstrong Cork Co.'s Insulation Div., has been appointed to the newly created position of indus-

trial insulation sales manager. **J. P. Sawyer** will assist Donnelly in the new function and will also continue to serve as manager of insulating refractories sales. **J. W. Liddell** will continue as manager of contract operations and **S. C. Martin** will be assistant manager of contract operations as well as manager of low temperature insulation sales. **R. H. Stark**, now building products division manager at Seattle, will succeed Donnelly as district manager for the insulation division at Pittsburgh.

"I HAVE ELIMINATED THE PROBLEM OF MOISTURE"

Here is another serviceman who has found that Thawzone provides a more efficient method of handling moisture problems.

Thawzone can be used to prevent trouble and to clear up an existing moisture condition.

122 N. Yale,
Fullerton, Calif.
Highside Chemicals Co.,
10 Colfax Avenue,
Clifton, N. J.

Gentlemen:

Since I began using Thawzone I have eliminated the problem of moisture when repairing refrigeration equipment.

Being in business alone, Thawzone's quick elimination of moisture problems has given me more time to devote to the other repairs that merit my attention.

This alone, as one can clearly see, saves valuable time and money, so I wish to say, and I'm sure I speak for the other gentlemen in my profession, "Thanks to Thawzone". I remain,

Very truly yours,

J. B. Clark

J. B. Clark
Clark's Refrigeration Co.

CHECK THESE THAWZONE ADVANTAGES AGAINST ANY OTHER MOISTURE REMOVING METHOD:

- | | |
|--|---|
| <input checked="" type="checkbox"/> 1. Actually destroys moisture... not a mere anti-dewer. | <input checked="" type="checkbox"/> 5. Does not release moisture when temperature changes. |
| <input checked="" type="checkbox"/> 2. Scavenges oxygen... the only product that eliminates this corrosion-causing chemical. | <input checked="" type="checkbox"/> 6. May be used in open or hermetic units containing "Freon", methyl chloride, methylene chloride, or isobutane. |
| <input checked="" type="checkbox"/> 3. Cannot cause pressure drop. | <input checked="" type="checkbox"/> 7. Costs only about 8 cents per lb. of refrigerant treated. Used in minute amounts. |
| <input checked="" type="checkbox"/> 4. Cannot clog with oil. | |

Why don't you try a 1 oz. bottle of Thawzone? Also available in 4 oz. and pint bottles. Call your wholesaler. Highside Chemicals Co., a unit of Stewart Industries, Inc., 4 Colfax Avenue, Clifton, N. J.

THAWZONE

The Only Product That DESTROYS Water... and Reaches ALL of it



2 YEARS OF CLEAN SERVICE

This needle valve remained clean and corrosion-free during its two years of service in a Thawzone-treated system.

Bob Farris has been appointed advertising manager for The O. A. Sutton Corp.



Farris was formerly associated with Crosley and Bendix Home Appliances Div. of AVCO for four years. He was advertising manager

of the laundry division at the time he left that organization. He was district manager and sales specialist for the Coleman Co. for several years and also served as sales promotion manager for Loyal Distributors, Wichita.

Thomas E. Zurick has recently been appointed sales representative for Marsh Instrument Co. in the states of Kentucky and West Virginia.



Before joining the Marsh sales staff, Zurick had been employed by Fairbanks-Morse Co., and prior to that had attended the University of Illinois.

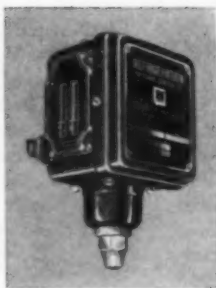
Roy D. Jenkins, representative of Punxsutawney Co. in Michigan, has recently had the Chicago area added to his territory. He will work with distributors in Michigan, northern Indiana, Illi-

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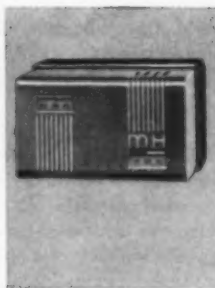
T 414 Temperature Controller

A heavy-duty mercury switch device to cycle equipment according to remote bulb temperatures. Easy to adjust.



L 413 Pressure Controller

Cycles operation by controlling suction line pressure. Holds control point. No shift even after thousands of operations.



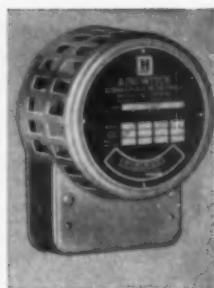
TA 420 Frigistat

A room thermostat for control of refrigeration and cooling machines. Snap acting contact. Corrosion resistant.



T 420 Frigistat

A mercury switch room thermostat. Ideal for pilot duty. Highly corrosion resistant. Protected by an extremely rugged case.



T 491 Airswitch

Especially useful when thermostat must operate under adverse conditions. Non-corrosive, mercury switch equipped.

Honeywell Refrigeration Controls

for large-building air conditioning

for freezer plant refrigeration

for frozen food warehouses

for warehouse cooling

Quality standard of the Industry

PUT 'em in—and forget 'em. That's what you do when you equip your installations with Honeywell temperature and pressure controllers, like those shown above.

This is possible only because they go on doing their job for years—requiring little, if any, attention.

There are good reasons for this long-lived service. Better materials and superior design, high standards of production inspection, a control point that doesn't shift, the use of dust-free mercury switches. The controls are built to function as precisely after thousands of cycling operations as they did when new.

From your customers' standpoint the controls are

invaluable. Because they are so dependable they safeguard his investment by protecting against freeze-up—and by ridding him of the worry of a disastrous thaw.

Eloquent testimony to the fact that Honeywell Refrigeration Controls are trouble-free is contained in yearly repair records. Of all the thousands of controls installed, a very minute percentage are ever returned for repair of any kind.

For complete information on the entire Honeywell line of refrigeration controls, call your local Honeywell office. Or write the home office, Honeywell, Dept. CR-10-96, Minneapolis 8, Minnesota.

MINNEAPOLIS
Honeywell

112 OFFICES ACROSS THE NATION



First in Controls

nois and eastern Wisconsin. Jenkins will maintain his headquarters in Grand Rapids, Mich.

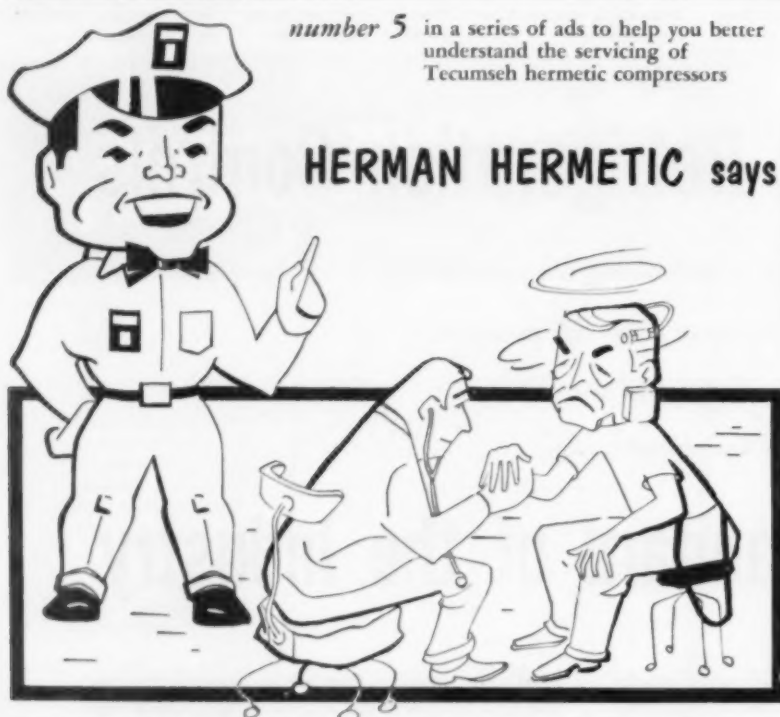
Since 1952, he has been service accounts supervisor.

John W. Downen has been promoted to assistant service manager for commercial refrigeration at Servel, Inc. Downen has been at Servel for nine years. In 1948, he became the commercial refrigeration division's assistant accounts contact representative.

Three new appointments to field sales positions have been announced by Trane Co. **S. Rowe Hill**, manager of the sales office at Little Rock for the past three years, has been appointed manager of the Oklahoma City sales office. **Banks W. Clark**, formerly manager of the sales office in

Oklahoma City, has been appointed manager of the company's Dallas sales office. Clark succeeds **A. J. Hackl**, who has recently joined the refrigeration department at the home office in La Crosse. **Jack Rule**, an engineer with 10 years of previous sales experience, becomes manager at Little Rock.

J. G. (Gary) Baker has been appointed to the newly created post of manager of application engineering and **George J. Basl** has been named as product design engineer at Viking Air Conditioning



number 5 in a series of ads to help you better understand the servicing of Tecumseh hermetic compressors

HERMAN HERMETIC says

MY PERFORMANCE HINGES ON A NUMBER OF FACTORS...don't jump to conclusions until you diagnose my particular case.

With each service call, it is necessary to analyze a completely new set of circumstances. The real cause of failure or improper operation is sometimes hidden by other factors that must be checked carefully before deciding the remedy. Electrical components such as overloads, relays and capacitors may be checked and replaced in the field. In addition, such things as oil and Freon charge, dirty condensers or improper cabinet seal will affect compressor operation. Line voltages and even such a simple thing as a blown fuse should be investigated. When you locate one possible cause of trouble you must be alert to other reasons for this situation. For instance, if the job is short of Freon, it is not enough to add charge and let it go. You should check for leaks or a break in the system. Only after thorough investigation of all possibilities will you be sure of good servicing. Since many common causes of failure may be corrected in the field, you are doing yourself and your customer a service if you cover all angles before deciding to return the compressor or, treat the effect rather than the cause.



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO
Company

World's Largest
Producer of
Compressors for the
Refrigeration Industry

EXPORT DEPT.:
P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.
Circle No. 26 on Reader Service Card



J. G. Baker

G. J. Basl

Div., National-U.S. Radiator Corp. Baker has been assistant chief engineer at Viking for the past five years and Basl has been on the engineering staff of the Heater Div. of Eaton Mfg. Co. for the past 14 years.

John C. Booton has been named director of sales by Norman Products Co. He will direct his efforts toward establishing a strong distributor organization for the company. Booton was previously a partner in the business management consultant firm of Roy D. Jackson & Associates.



Nelson W. Campbell has been appointed publicity manager at Servel, Inc. Before joining Servel, Campbell was publication editor for General Motors' Electro-Motive Div. at La Grange, Ill.

John C. Boeshaar has been appointed district sales manager and **Thomas J. Spence, Jr.** has been named advertising manager of Ebco Mfg. Co. Boeshaar, who has been advertising manager at



J. C. Boeshaar T. J. Spence, Jr.

Ebco since 1950, is now sales manager for the northeastern district, covering New York, New England, parts of New Jersey and Pennsylvania. Spence was formerly director of sales publications and publicity for Willard Storage Battery Co.

U. V. Muscio, assistant to the president of Fedders-Quigan Corp., has been appointed a vice president of the company. Muscio's primary responsibility will be in setting policy for public, industrial and legal relations.

Before joining Fedders in 1949, he was associated with Lumber Mutual Insurance Co. in an executive capacity.

Joseph C. Hoopes has been named manager of refrigerant field distribution sales for the Du Pont Co.'s "Kinetic" Chemicals Div. He succeeds Charles Wirth III, who has been named New York district sales manager for the division. Hoopes joined the staff of Du Pont's Jack-



son Laboratory in 1942. Since mid-1954 he has served as market analysis manager for the "Kinetic" Div.

Dr. Walter L. Ross has been named manager of National-U.S. Radiator Corp.'s development laboratories in Johnstown, Pa. He was formerly assistant professor of mechanical engineering at Pennsylvania State University and was associated with the university's heat-power and thermodynamics

division. He has also served as a consulting engineer.

William E. (Bill) Roberts, formerly district manager for Arvin Radio and TV, has been appointed district sales manager for O.A. Sutton Corp. Roberts will work in the Atlanta area.

BUY FROM YOUR REFRIGERATION WHOLESALE

LEADING REFRIGERATION SERVICE SHOPS USE DURO-CHROME Refrigeration Tools

THE MOST COMPLETE LINE IN "MATCHED SETS"

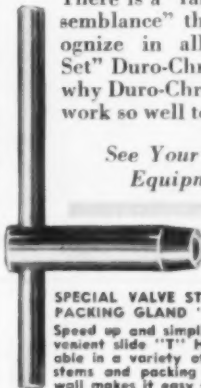
When you use specially designed Duro-Chrome "Matched Set" Tools — you can do all refrigeration jobs *Faster — Easier — Better!*

Each tool instantly seems just right in your hand. Your fingers drop easily into the natural grip and you get a feeling of perfect balance. There is a "family resemblance" that you recognize in all "Matched Set" Duro-Chrome Tools. That's why Duro-Chrome Quality Tools work so well together.

See Your Refrigeration Equipment Jobber



DURO REFRIGERATION RATCHET
5 tools in 1! Head has 1/4" square drive hole and fingertip reverse control. Handle has 3/16", 1/4" and 5/16" square opening for valve stems and a 1/2" hexagon opening for head, seal and flange bolts. Chrome alloy steel, chrome plated and brightly polished. Only 6-1/4" overall.



SPECIAL VALVE STEM AND PACKING GLAND "T" WRENCHES

Speed up and simplify jobs with these convenient slide "T" Handle Wrenches. Available in a variety of sizes to fit most valve stems and packing gland nuts. Extra thin wall makes it easy to get at these hard-to-reach spots.



FLARE NUT WRENCHES
Accurately broached hex openings fit flare nuts securely and allow positive turning action in close quarters. Straight or offset type. Brightly chrome-plated and polished, chrome alloy steel.

Get Your DURO-CHROME Pocket Catalog

REFRIGERATION SOCKET SETS
With chrome alloy steel sockets in all the sizes and shapes required for refrigeration work. Hexagon for hex nuts and bolts, square for valve stems and set screws; special oval or prong sockets for packing gland nuts.

ASK YOUR DURO JOBBER—for a free copy of the Pocket-Size Duro-Chrome Tool Catalog; or send 10c in coin, with coupon below, to Duro Metal Products Co.



"SEND THIS COUPON FOR YOUR PERSONAL COPY"

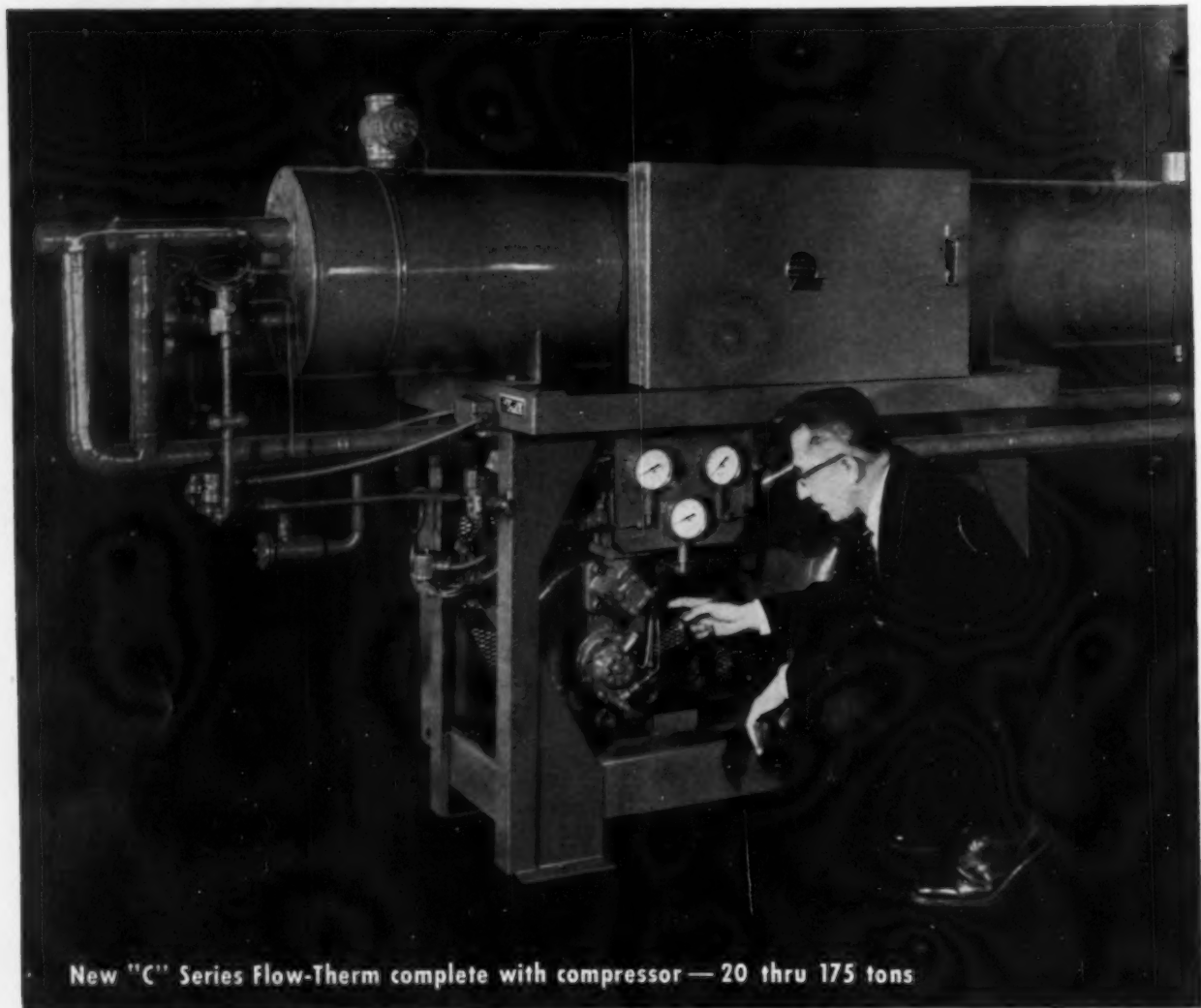
DURO METAL PRODUCTS COMPANY
2449 N. Kliders Ave., Chicago 39, Ill.
Please send my copy of the DURO-CHROME Pocket-Size Catalog for which I enclose 10c in coin to cover costs of postage and handling.

MY NAME _____
ADDRESS _____
City _____ STATE _____

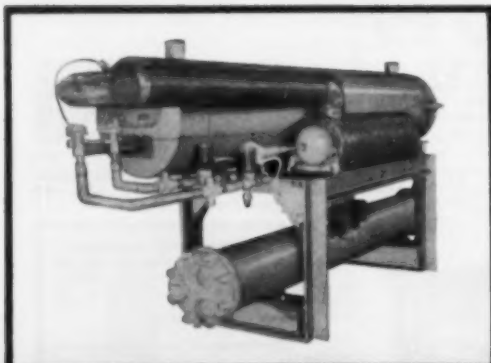
Also Makers of Nationally Advertised DURO Power Tools

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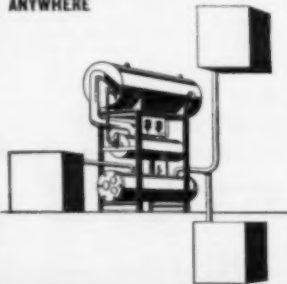
NEW! complete!...compact!



New "C" Series Flow-Therm complete with compressor — 20 thru 175 tons



POSITION YOUR COMPRESSOR ANYWHERE



Flexibility —

is the key feature of Acme's "R" Series Flow-Therm. It's a custom package, ready for remote mounting of compressor. The major components, Acme Dry-Ex and condenser are selected to provide the exact capacities needed for economy both in first cost and in operation. Mounting arrangements available to fit the requirements of floor space and head room.

"R" Series Flow-Therm for remote compressor mounting 15 thru 300 tons.

...the Flexible **Acme FLOW-THERM®**

**fills your packaged chiller needs for
economical installation, dependable performance**

Here it is — Acme's new "C" Series Flow-Therm compact package complete with compressor — designed specifically for modern refrigerants. Constructed with proven Acme components, including a great new Dry-Ex®, it's a packaged liquid chiller that fits all the requirements of architects, consulting engineers and contractors for size, efficiency and ease of installation.

The Flow-Therm arrives on the job completely assembled and factory tested, ready for refrigerant charging and connection to power and liquid supply lines. Whether the application is air conditioning or process cooling, you save the engineering of a built-up system, make easier, more accurate quotations to customers, and gain fast, economical installation.

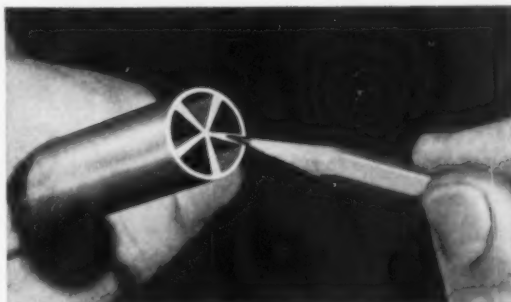
Why is this new package so compact and efficient? One reason is Acme's new Dry-Ex, a smaller, lighter chiller that packs 25% more cooling capacity in every cubic foot. In addition, size of compressor, condenser and heat exchanger are balanced to put maximum capacity in a minimum space. Proved components, correct controls, and factory-installed piping mean long trouble-free service.

FLOW-THERM proven as Heat Pump

Heat pump applications have been successful in a wide range of climates. Factory modifications for heat pump use are simple and inexpensive.

USE COUPON BELOW TO GET FULL FLOW-THERM DETAILS

- ☆ **Simplifies engineering**
- ☆ **Makes estimating accurate**
- ☆ **Space-saving size**
- ☆ **Balanced, proven components**
- ☆ **Less maintenance**



Star feature —

of the new Acme Dry-Ex — key component of the Flow-Therm — is a new copper tubing with a star-shaped aluminum insert* that more than doubles the heat transfer surfaces. Tubes extend straight through to multi-pass heads at each end. No bends, no soldered joints — no leaks!

*Patent applied for



ACME INDUSTRIES, INC. JACKSON, MICHIGAN



New selection procedure simplifies your engineering task

Send me the complete new catalog on Flow-Therm packaged liquid chillers.

Name..... Title.....

Address.....

City..... Zone.....

State.....

Manufacturers of Quality Air Conditioning and Refrigeration Equipment since 1919

COMPARE **SERVEL SUPERMETIC**

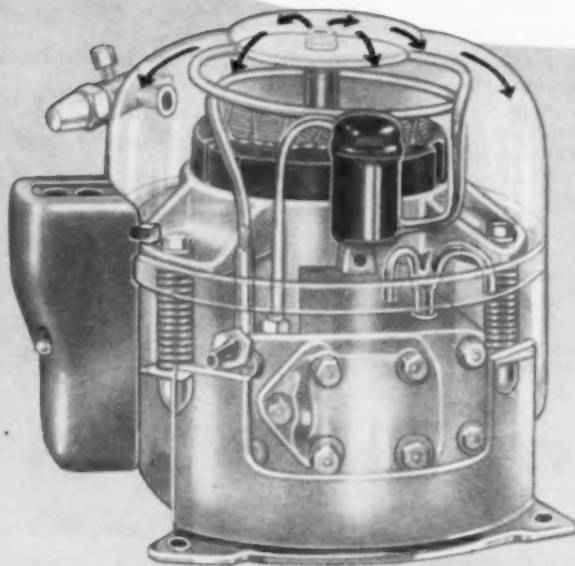
**TOP-RATED FEATURES THAT
HELP YOU INCREASE SALES...**

Low current inrush,
high power factor motors
Refrigerant and
oil-spray cooled

Models for F-12 and
F-22 applications

Fully enclosed against
moisture, dust and
loss of refrigerant

Forced-feed lubrication . . .
no manual oiling



Compact, low height,
space-saving design

Oil-free refrigerant . . .
no oil-slugging

Sizes to fit any type
and style fixture

High temperature models
for air-conditioning,
water cooling, bulk milk
and beverage cooling

SERVEL SUPERMETIC

HERMETIC POWER UNITS

are available for High, Medium or Low-Temperature Applications — for either expansion valve systems ($\frac{1}{4}$ H. P. to $7\frac{1}{2}$ H. P. Models) or for capillary tube type systems ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 H. P. Models).

. . . and you'll see why
Servel gives you

- ★ BETTER PERFORMANCE
- ★ GREATER ECONOMY
- ★ MORE DEPENDABILITY

Where else can you find such a combination of tried and proved advantages? Each is in itself a highly desirable feature. Call on Servel NOW for applications assistance in planning your refrigeration requirements. There's a factory representative in your area. Wire, write or phone us today.

SERVEL, INC., Commercial Refrigeration Division, Evansville 20, Indiana

THE NAME TO WATCH FOR GREAT ADVANCES
IN REFRIGERATION AND AIR CONDITIONING

NEW Styling— Improved **PERFORMANCE**



TYPE PE-A

THE LEADER IN THE AIR-CONDITIONING FIELD THE RELIABLE *Fluidyne*® PUMP

LOADED WITH FEATURES: **NEW CERAMIC SEAL**—The latest improved seal with ceramic and plastic seal faces results in longer seal life.

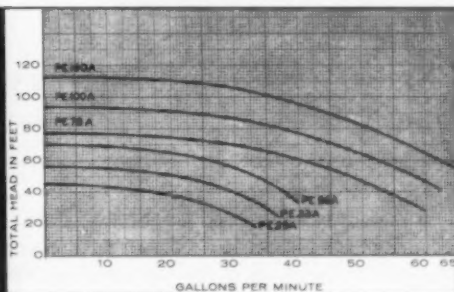
BRONZE WEAR RING—Prolongs efficient pump life. Prevents bronze impeller becoming locked with corrosion when system is shut down. Eliminates the need for breaking the impeller loose by hand when restoring the system.

CLOSE COUPLED—Short shaft results in quiet operation and longer seal life. Fits in smaller space.

IMPROVED PERFORMANCE—Capacities and heads have been improved for more efficient pumping and greater range. (Graphically portrayed at left).

NEMA TYPE MOTOR—Standard heavy duty, ball bearing motors with one piece stainless steel threaded shaft results in quiet, vibrationless operation.

Now Provides:
**New—
PERFORMANCE
QUALITY
DEPENDABILITY
ECONOMY**



Key: PE25-A 1/4hp; PE33-A 1/2hp;
PE50-A 3/4hp; PE75-A 1hp; PE100-A 1 1/2hp;
PE150-A 1 1/2hp; Speed: 3450 rpm.
Larger sizes available through 5hp.

MAIL COUPON TODAY

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
2005 Northwestern Ave., Indianapolis 8, Ind.
OR 301 West Avenue 26, Los Angeles 31, California.

Please send Bulletin No. 1W-155 describing
new Type PE-A pump.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

CR&AC

PEERLESS PUMP DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

Factories: Los Angeles 31, California and Indianapolis 8, Indiana.

Offices: New York; Atlanta; Chicago; St. Louis; Indianapolis; Phoenix;
Fresno; Los Angeles; Plainview and Lubbock, Texas;
Albuquerque, New Mexico.

Distributors in Principal Cities; Consult your Telephone Directory.

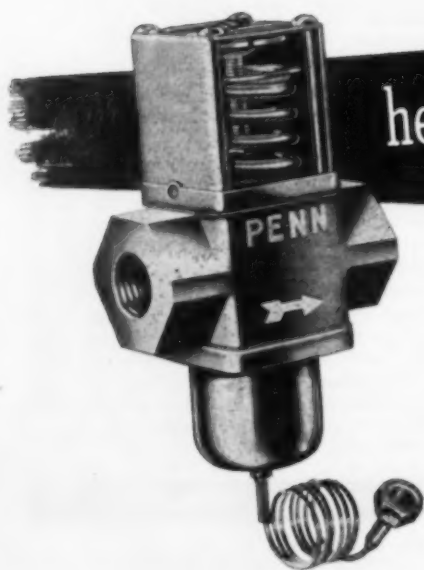


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MORE

manufacturers and installers

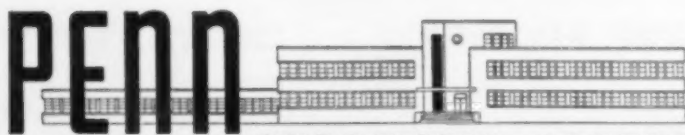
BUY PENN THAN ANY OTHER WATER VALVE



here are the reasons why...

- No valve chatter
- No rusting of range spring
- No water hammer
- No corrosion of sliding parts
- Easy manual flushing
- Highly sensitive yet accurate

Add up these reasons and you'll get one answer . . . Penn water valves *stay on the job longer!* And, it's an answer proven correct in hundreds of thousands of installations. Don't settle for something "almost as good" . . . specify and install Penn water valves. Ask your wholesaler. **Penn Controls, Inc., Goshen, Indiana.**



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 31 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION

SELF-SERVICE MEATS are making their way slowly in Scotland, the magazine *World Refrigeration* reports. In markets where self-serve cases have been installed along side of service type cases, customers still tend to shop from the self-serve units only at peak periods. A new market in Dundee, however, is going 100% self-service on meats, with a 24-foot fixture, the largest installed in Scotland to date. Eighteen-foot units have been tops up to now. Opinion is that self-service will grow as soon as the first hurdles have been passed, because of the shortage of skilled men and the need for cutting operating costs all along the line. One result of the spread of self-service is expected to be the entry of farmers into the meat business by killing, packing and selling their own beasts through self-service units which they would establish.

A NEW IDEA IN CLEANING CARS making use of refrigeration equipment, has been devised by Emmett J. Courts of Hollywood, Calif. He cleans, washes and polishes automobiles by bombarding them with flaky ice particles in a stream of compressed air. From time to time, he introduces into the air stream an emulsion of wax in water. As Courts explains in U.S. Patent 2,699,403, the wax forms a protective coating and the continued bombardment of the ice particles provides a smooth, highly polished surface. He keeps the ice flakes at a temperature at which they are somewhat slushy.

EFFECT OF AIR CONDITIONING on the water distribution systems of cities which have any considerable number of installations will likely result in most of them enacting ordinances requiring the use of water conservation devices. This was the essence of a review of the problem presented at the recent national convention of the American Society of Civil Engineers by C. Kelsey Mathews, principal engineer of Burns & McDonnell, Kansas City. Pointing out that air conditioning installations represent an extremely poor annual load factor in water usage, Mathews said that only in the past three or four years have the water requirements for these systems been considered important. Studies in Kansas City, he said, indicate excessive investments in water distribution systems will be required if non-conserved air conditioning is not prohibited.

COMMERCIAL REFRIGERATOR sales continue to climb, along with the rest of the refrigeration and air conditioning industry's products. Reports by member manufacturers to the Commercial Refrigerator Manufacturers Association, who do the majority of business in that field, show that sales for the first five months of 1955 were approximately 24% ahead of the same period of 1954.

INCREASED CABINET SPACE for frozen foods is a "must" if food stores are to take full advantage of the current expansion now taking place in cooked and prepared foods. This is the opinion of Warren Dills, general sales manager of Honor Brand Div., Stokely-Van Camp, one of the nation's leading frozen foods producers. If they are to grow with the frozen foods business, retailers won't be able to struggle along with their present cabinet space, Dills says. Not only will they need additional sales cabinets, but they'll also need ample back-room storage space—something that most of them have little, if any, of now. Of the future, Dill says that "it is doubtful whether the shelves of a modern supermarket include more than 25 or 30 items that will not be frozen in the comparatively near future".

A HEAT PUMP device now on the market in Great Britain really handles a multiplicity of household tasks. According to the manufacturer, here's what it does: (1) provides 2½ cu. ft. of refrigerator storage plus ice-making facilities; (2) maintains a pantry of approximately 120 cu. ft. at 40 F; (3) provides up to 120 gallons of 140 F water daily through a 30-gallon tank; warms linen-cupboard. The heat pump is powered by a 1/3 hp sealed unit with a consumption of 360 watts, and its overall dimensions are 24" x 24" x 64".



DIPLOMAS like this are used to certify the fact that salesmen of Maintain Store Engineering Service have been thoroughly qualified for their work through the firm's intensive training program.

You Can QUALIFY YOUR SALESMEN

... for the type of work they're going to do. That's the practice followed by this commercial refrigeration expert who goes to great lengths to find and train the right men for his sales organization.

ONE of the greatest factors of success in selling any line of merchandise and services is the ability and effort applied by the individual salesman. In turn, the effectiveness of the salesman depends in large measure upon the wisdom employed by management in his selection and in his training.

Virtually every businessman will agree with the theory of prudent selection and training of

salesmen, but not many employers—including those in the fields of commercial refrigeration and air conditioning—put this theory into practice with as much know-how or as much vigor as does Maintain Store Engineering Service, Inc., Woburn, Mass.

In the Maintain organization is found a comprehensive program of hiring and training men for selling a full line of fixtures for food,

drug, hardware, and variety stores. Some of this selling is done directly to the stores, but much also is done indirectly by sales contact with refrigeration and air conditioning dealers who handle fixtures manufactured in this company's plant. Because of this latter fact, the training phase of the Maintain program is extended in many cases to include salesmen of the company's dealers also.

Although this company's program is aimed at developing salesmen for work in the retail store field, its principles are equally applicable for selling air conditioning and refrigeration in the non-store fields as well.

The program was designed by Russ Maintain, who, in addition to heading the company with some 150 employees, has found time to conduct a course in Store Engineering for the past nine years at Boston University.

First item in this company's program for good salesmanship consists of procedure for the selection and hiring of salesmen.

First Contact Important

For the initial contact with applicants, both newspaper advertising and employment agencies are used. Yet another favorite source of supply consists of men who apply for sales jobs on their own initiative. "Such initiative demonstrates, usually, that the applicant not only possesses that virtue itself but also that he has given at least some preliminary analysis to the question of where his own abilities and efforts might be best applied," says Maintain. "Thus, we have not only the applicant's own tentative conclusions concerning his desire and ability to sell in this field, and evidence of initiative, but also evidence that he has realized the desirability of approaching a problem by making

an analysis of it. On that basis, there are three factors which are at once indicative that he will have what it takes to make good."

But the company will not hire an applicant on such a basis alone. If he has had employment experience, it wants to investigate what actual or potential skills the previous labors have shown. It also wants to consider the man's earnings potential and desires. "There's no point in hiring a man accustomed to earning \$15,000 a year if the only territory open or in prospect will not be likely to earn him more than \$10,000," Maintain sagely observes.

In some cases, interview and previous record are alone sufficient to decide for or against the hiring of a sales applicant. But in many other instances, even when everything else seems favorable, this company pays out \$35 to one of several professional organizations to give the applicant an aptitude test.

"It's less expensive to spend that money to find out that an applicant's aptitude is unfavorable for our field, than to lose potential sales through hiring him, as well as losing his basic salary and traveling costs for several months through on-the-job discovery that he just doesn't fit," says Maintain. "Also, it is fairer to the applicant himself; he doesn't waste his time and suffer discouragement in a job for which he isn't fitted. Moreover, the test often helps to direct

the applicant into some other field which is best for himself."

Incidentally, this company has experimented with schemes for hiring several men almost simultaneously so that they may take subsequent training in groups. It has abandoned that procedure, however, in favor of hiring a qualified man whenever it has a suitable opportunity for him.

With the men who have been hired, the second stage of the program for good salesmanship is training. Here again the Maintain method is a product of experience as well as theory, and of gradual improvement through revisions.

As presently constituted, there are two introductory elements which usually require about six weeks and which are overlapped in any sequence that is most convenient. One of these is a process to make the new employee thoroughly familiar with the products which he is later to sell.

Stress Product Familiarity

In this company, the gaining of product familiarity includes a generous allowance of time for the salesman to examine the items while they are in all stages of manufacture. This process encourages him to see not only *how* each component is designed, produced, and assembled, but also *why*. Especially, he learns what benefits the customer will receive from the products he sells, as compared to those that will be offered by his competitors.

The other part of the introductory program begins with an informal study of the company's catalogs and other product literature, and general discussions with the sales manager. Then the salesman-trainee is sent out with other salesmen on some of their regular calls.

As a largely silent witness of the experienced salesman's techniques, the trainee becomes familiar with some of the problems posed by prospective customers, and how they are properly answered. "But most of all he learns," Maintain asserts, "that he

Continued on page 74



NOTE-TAKING is the order of the day as this group of dealers and their salesmen attend a Maintain-sponsored refresher course in the principles of store engineering.

ANY DEALER CAN PROFITABLY USE THESE PRINCIPLES OF

Layout for Self-Service

BY following proved principles of layout, the productivity of a self-service meat department can be improved by as much as one-fourth over what it was before these principles were adopted.

These facts were established by experts of the U. S. Department of Agriculture's Agricultural Marketing Service, who first developed the principles and then put them to actual tests in a number of selected stores located in various sections of the country.

Productivity, measured in sales per man-hour, increased from \$21.31 average to \$26.43 in four test stores operated by one company, while in four similar stores studied for control purposes the sales per man-hour dropped from \$19.42 to \$19.27. In another series of three test stores and a corresponding number of control stores, sales per man-hour in the former rose from \$17.64 to \$22.64, while the figures for the control stores were rising from \$18.53 to \$19.71.

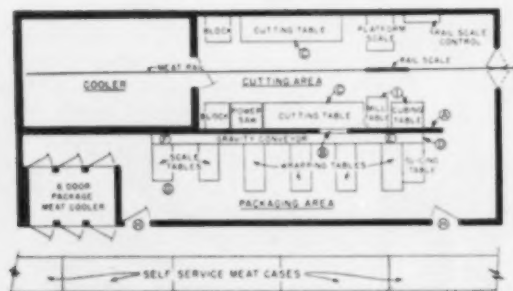
In both instances, sales of meat averaged just about the same in both the test and the control stores. The

difference in productivity—and a shorter way to spell this is "net profit"—was due to improved layout of the meat department itself.

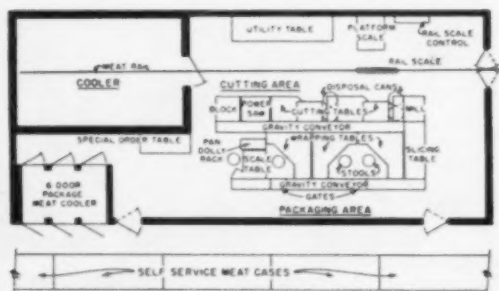
With every food store manager thinking first and foremost today about how he can best reduce, or hold down, the cost of operating both service and self-service meat departments, a knowledge and application of these principles can help every refrigeration dealer do a more effective job of store planning for his meat and food market prospects and customers.

The complete report is titled "Principles of Layout for Self-Service Meat Departments", and is known as USDA Marketing Research Report No. 77. Included in it are layout principles relating to receiving, blocking, the meat cooler, meat cutting area, wrapping area, pricing operation, display area, use of wheel-type conveyors, and steps to be taken in developing a complete meat market layout in new stores.

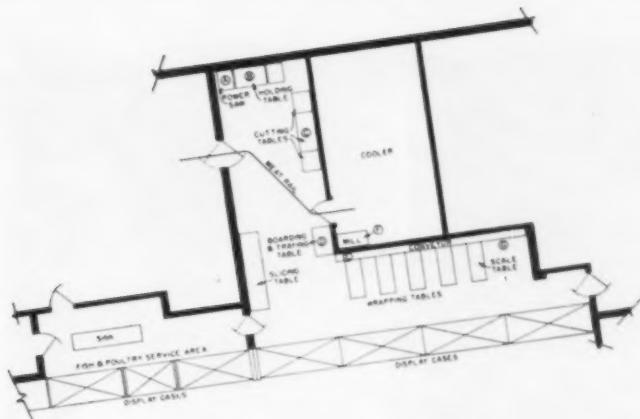
Perhaps the most interesting part of the report, to refrigeration dealers who sell equipment to food stores,



A SAVING OF TWO WORKERS resulted from the application of good layout principles to the unimproved meat department shown at left, above. The only structural

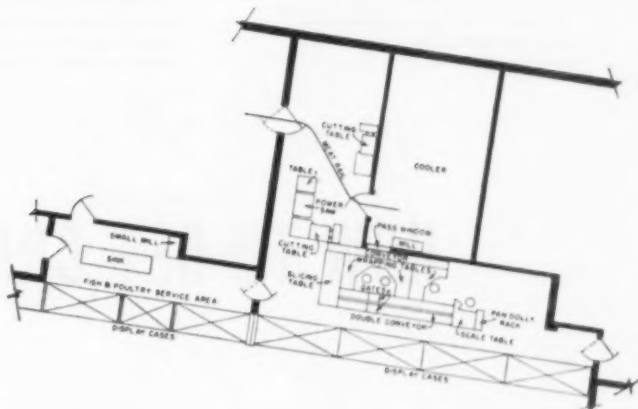


change involved in the improved layout (above, right) was the removal of partition between the cutting and packaging operations.



Meat Departments

NO STRUCTURAL CHANGES were involved in correcting layout deficiencies of the meat department operation shown above. A careful analysis of product flow through the market resulted in the improved layout shown at right. This layout, together with improved methods, equipment and materials effected a saving of three workers with the same volume of sales.



is how these principles actually were applied in the remodeling of two different meat departments in existing stores. The "before" and "after" sketches of these two departments are illustrated with this article.

The reconversion of an old market to a new layout usually presents more problems than designing a new market layout, since there is less flexibility in arranging equipment and walls. Such features as existing walls, coolers, and types and location of display cases must be considered when converting an existing market into an improved layout, and often compromises must be made with what the designer believes to be the ideal layout. The benefits to be derived from an improved layout in comparison with the cost of the change is the determining factor.

An analysis of one typical unimproved meat department operation shows some of the benefits to be obtained from an improved layout (Fig. 1). In this market, there was a partition between the cutting room and the packaging operation (A). This partition had a pass window (B) that was seldom used because the conveyor next to it was usually filled with pans of meat.

Cutting positions (C) were located on both sides of the room, making it necessary in most cases for the

meat cutters to walk to the end of the conveyor (D) to dispose of pans of product. A single conveyor (E) was used both for wrapped and unwrapped meat.

Often unwrapped meat would move down the scale to the pricing operation (G) and had to be carried back to the wrapping area. Frequently when the conveyor was filled the wrapped merchandise had to be carried by hand to the scale and pricing operation.

There was no accumulation area for wrapped and priced packages, which made it necessary for the weigher to take each individual pan of product to the holding cooler or to the display cases. The doors leading to the display cases (H) opened into the meat processing area, which was in the opposite direction of the product flow. The small mill and cubing machine (I) were located in the cutting area, making it necessary to walk into the cutting area each time a special customer order was processed.

In the improved layout for this market (Fig. 2), the only structural change to the store was the removal of

Continued on page 77



NECESSARY DATA on the make of existing equipment, dealer from whom it was purchased, and current obligations usually can be obtained through inspection and casual conversation.



BANK REFERENCE is readily obtained from the check which the customer writes out to cover the down payment on the new equipment. Banks are always a valuable source of credit information.



LINE OF MERCHANDISE carried by the store can easily be determined by a cursory inspection of the shelves and cases. These suppliers can then be followed up for further references.

HOW TO GET CREDIT INFORMATION

EVERY commercial refrigeration distributor or dealer is in business to make a profit. His ultimate aim is to develop his sales program so as to produce the greatest volume of sales with the least expense and the greatest profit.

Financing many of these sales is essential in this business. Financing involves credit extension, and credit—if properly used—is an effective sales tool. It is important to remember, however, that no businessman ever sold on credit when he could sell for cash. If you could always get paid in cash when you delivered the merchandise, and you could sell all of the merchandise you could secure on that basis, you would never have an open account or an instalment credit transaction.

As long as credit has come to be an essential part of the commercial refrigeration business, however, it is important to every distributor and dealer that any

equipment which is sold on the instalment plan be sold on a sound basis. The profit in any instalment sale is represented by the last two or three payments. If sales are made on an unsound basis, and fall through before these final payments are made, the dealer who sold the equipment inevitably suffers.

Obviously, then, the dealer's primary problem as far as credit is concerned is to develop a procedure which will permit the maximum number of sales to good customers and at the same time screen out the undesirable customers. To do this, the dealer must have in his own organization a satisfactory credit system which is not dominated by the sales department. This is important, for no matter what credit terms you establish they will never quite satisfy your sales department. Most salesmen, by their very nature, will want a little more liberal credit terms than you are willing to extend.

The simplest way to screen out undesirable customers is to obtain ample credit information prior to the approval of the sale. This can best be handled by the salesman himself during the time that he is discussing the transaction with the prospect. Unfortunately, however, most salesmen are hesitant about even

Editor's Note: The material contained in this article was developed from information obtained from Kenneth R. Wells, a vice president in the industrial department of American National Bank & Trust Co. of Chicago, Illinois.



VOLUME OF BUSINESS can be estimated by an experienced salesman simply by sizing up the nature of the store and by watching the rate of activity at the check-out counters.



DELIVERY MEN for such suppliers as bakeries and dairy firms can be "pumped" for additional information on the volume of goods ordered by the customer and the promptness of payment.



COMPLIMENTS to the owner on the size or quality of his store can be adroitly used to draw out from the merchant much vital credit information without ever producing a formal credit application.

while you're making the sale

talking with a prospective customer concerning his financial condition. They shudder at the very thought of pulling out a legal-looking credit application form.

Many salesmen simply don't realize the need for this detailed credit information, and they have little or no idea of how to go about getting it. What they fail to realize is that most of this vital data can readily be obtained in such an adroit and indirect way that the prospect won't even realize that his credit status has been discussed.

For instance, a cursory physical inspection of the premises should tell the salesman a great deal about the type of business which the prospect conducts and the scope of its operations. Whether the store is a delicatessen, a fruit market, a butcher shop, a supermarket, or a bakery of course would be obvious. It should be almost equally apparent whether or not charge accounts are extended and whether or not deliveries are made.

In the case of a bakery, for example, it would be quite important from a credit standpoint to know whether the firm is merely conducting a retail business for walk-in customers or whether it also is supplying a number of restaurants in the neighborhood. Usually

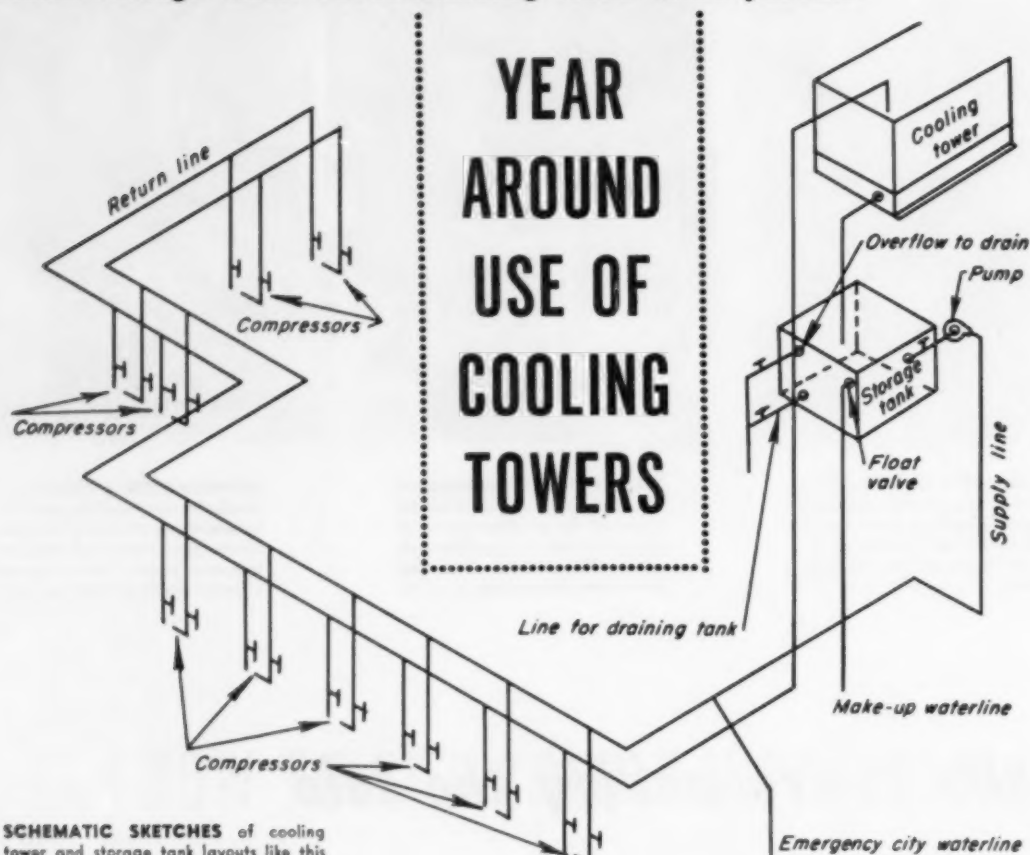
a salesman can obtain all of this information without any more effort than is required to look around the premises and engage the owner or operator in informal conversation.

It is only natural for a salesman, in talking with his prospect, to find out what equipment he has and from whom he purchased it. During this conversation it usually develops whether or not the equipment is free and clear. This information automatically gives the salesman a list of the firms from which the prospect has bought equipment and a knowledge of present equipment obligations. These are excellent references, yet the salesman has never asked his prospect for credit information.

If the prospect is a food market, the salesman can readily determine the lines of merchandise carried by glancing at the trade names of the products displayed in the cases or on the shelves. In general conversation he usually can secure the names of the dairy company and bakery with which the food merchant deals. Casual conversation with delivery men for any suppliers who might drop into the store during the salesman's

Continued on page 52

Indoor storage tanks for recirculating water make possible



SCHEMATIC SKETCHES of cooling tower and storage tank layouts like this give installation men a better "picture" of the job, and help in sizing piping and pumps for the water circuit.

Here's how a Columbus, Ohio, dealer has capitalized on the local water shortage to promote the sale of cooling towers in connection with food store refrigeration installations in an area where freezing could be a major problem

COOLING towers for year-round operation on commercial refrigeration equipment, as well as for seasonal use on air conditioning, have become virtually a standard part of all food store jobs sold and installed by United Refrigeration Service, Inc., Columbus, Ohio. This commercial refrigeration and air conditioning firm now makes it a practice to originally bid all food store jobs on this basis, according to sales manager Howard Grossman, and most of the firm's customers have come to accept both the cooling tower and its extra cost as just another necessary part of the job.

Columbus water rates are high, supply is limited, and sewer restrictions are rigid. In approaching a food store customer, a United sales engineer first explains that

the type of installation recommended by his company can save the food market's management up to 75% of every water-bill dollar. Then he clinches his argument by pointing out that in many locations a store without this recommended system of water conservation simply wouldn't be able to get enough water to operate its refrigeration equipment during certain critical times of the year.

How does a cooling tower installation intended for year-round use in a temperate climate on commercial refrigeration units differ from one for seasonal use on air conditioning equipment only? Primarily, Grossman explains, in that some means must be provided to prevent freeze-up of the tower during winter months. To accomplish this, United's engineers plan for

the installation of an interior storage tank for the recirculating water.

This tank, Grossman points out, should have a capacity about four times as great as the gpm capacity of the cooling tower. Of open-top construction in 10 to 14-gage black iron, it can be located anywhere inside the building so that it will not be exposed to freezing temperatures. It may be designed and built in any shape and with any variation of dimensions which will enable it to best fit the location planned for it and to pass through doorways, windows, or other means of access into the building.

Thermostat Controls Fan

In actual operation, water is pumped to the compressors and then up to the tower in conventional fashion. Then the water drains directly from the tower to the overflow tank where it is stored until pumped out to the compressors again. The tower is controlled in winter by a thermostat in the tank so that when the water temperature reaches approximately 60 F the tower fan shuts off.

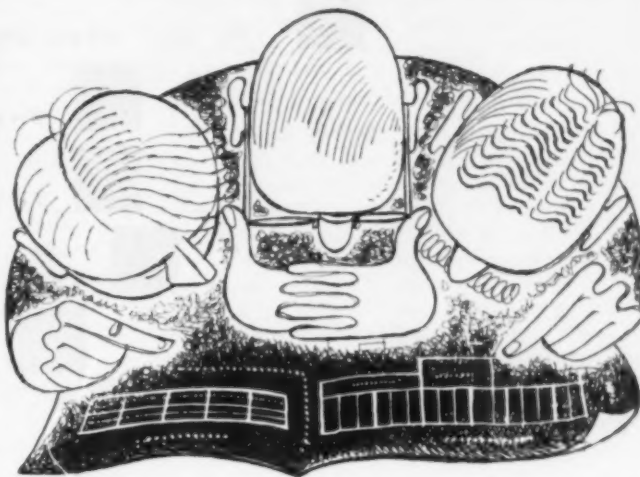
With the fan off, the recirculating water is simply pumped straight through the tower and into the storage tank without being excessively cooled. Water leaving the condensing units usually is warm enough (70 to 75 F) so that very little freeze-up occurs on the tower under these conditions.

Large Drain Lines Needed

The primary object during winter operation is to get the water away from the tower rapidly, so the piping from the base of the tower to the storage tank has to be sized with that thought in mind. On a 25-ton tower, for instance, a 3" line is commonly used, while on larger installations the size of this drain may be as large as 4 or 5" in order to assure sufficiently rapid run-off from the tower.

The storage tank itself must be protected against possible overflow by installation of an overflow line, usually at least 3" in size,

Continued on page 78



Three Heads Are Better Than One

STORE planning today has become a complex and detailed procedure, and it is difficult—if not impossible—for any one man to be an expert in every phase of it. One commercial refrigeration dealer who clearly recognizes this fact is Donald D. Denny, president of Modern Market Fixtures, Inc., Dayton, Ohio. That's why Denny has laid down an arbitrary rule for his firm that no store plan—even if prepared by the boss himself—be submitted to a customer before it has been discussed and constructively criticized by the company's entire sales staff.

In today's era of specialization, Denny feels, it pays to pool your knowledge. One salesman, for instance, might be somewhat of a specialist in delicatessen installations, while another might have an extensive background in the food service field. Or, one might have a better knowledge of plumbing or electrical work than the others.

That's why Denny insists that each store plan, although prepared by the salesman handling the job, be spread out on the drawing board and "kicked around" by all the salesmen (including himself) as a group. With all the wealth of detail and technical know-how involved in modern store planning, he points out, it's often a simple matter for one salesman to spot errors of omission or commission that another might miss.

So whenever a store plan is ready, Denny and his three salesmen go over it together with a fine tooth comb. Two of the salesmen, as well as Denny himself, have had considerable experience in the field, and their comments and opinions as they study each new plan prove of great value to the customer and also to each other.

The third man, a relative newcomer to commercial refrigeration, sits in on the sessions primarily as a means of increasing his own knowledge. Denny feels that the new man can learn far more from practical day-to-day discussions of specific installations, than by any formalized instruction to which he might be subjected.

It's both surprising and encouraging, Denny reports, how many changes are made in plans at this stage of the game, even when the salesmen who have prepared the drawings feel that they've considered every possible angle.



THE GUY WITH EVERYTHING



THE SLUGGER



THE PLUGGER



THE SWEET GUY



THE G.O.K.

How To Use An Aptitude Test . . .

HIRING salesmen is an uncertain procedure at best. As any commercial refrigeration or air conditioning executive knows all too well, there are too many unknown quantities in every applicant to permit the development of any foolproof formula for assuring the employment of just the right man for the job.

The result of this uncertainty is that all too often a dealer or contractor hires a new salesman with full confidence, only to discover some time after the man has gone to work that he simply won't fill the bill. Needless to say, the cost in time, effort, and money of training and breaking in a new salesman who doesn't prove productive is not only burdensome but wasteful.

No one has yet discovered a way of avoiding this difficulty completely. The only thing a dealer or contractor can do is to utilize every means at his disposal to improve his employment "batting average" by minimizing the number of these costly errors in judgement.

One of the effective tools which is being used more and more widely by firms in the commercial refrigeration and air conditioning field to achieve this end is the personnel aptitude test. Many dealers and contractors, in fact, now submit all job applicants to such a test as a standard part of their hiring procedures.

While such tests can prove a valuable help in the screening of potential employees, it would be a mistake for any executive to assume that their application would prove a solution to all of his employment problems.

There are many things which the results of an aptitude test will tell an employer about the job applicant, but there are also many other factors which no such test can accurately assay. To guide employers in the use of these tests, Sadler & Associates, Chicago, a

personnel management counsel firm which has had long experience in the preparation and use of vocational adaptability tests, has outlined the pros and cons of this method of screening applicants for sales jobs prior to their employment.

There are five important factors affecting employee acceptability, the Sadler organization points out, that vocational adaptability tests do not cover. These are: (1) job knowledge; (2) social acceptability; (3) moral honesty; (4) the man's wife; and (5) the man's boss.

If tests can't measure these five points, an employer might well ask, then just what can they be expected to do? In answer to this pertinent question, it has been the experience of the Sadler firm that valuable information on the following personal characteristics can be obtained from a test battery for salesmen that involves about 2½ hours of testing: (1) intelligence; (2) persuasive ability; (3) life adjustment; (4) personal drive; (5) social lubricity; and (6) emotional control.

These points, both negative as well as affirmative, are amplified by Sadler & Associates in the ensuing paragraphs.

WHAT CAN'T BE TESTED

Job knowledge. A sales trainee of 22 and a 45-year-old veteran may have very similar test results, but common sense dictates that the tests be interpreted differently. Job knowledge is something to be determined by interview.

Social acceptability. The factors of race creed and human prestige cannot be ignored. Common sense would again say not to send a proper Bostonian into

a rural southern territory or even, perhaps, into metropolitan New York.

Moral honesty. It is relatively easy to tell whether or not a man has "fudged" in answering the test questions. But the fact that he has put his best foot forward in answering the questions does not, in our opinion, reflect on his moral honesty. The best way to check moral honesty is by checking the applicant's references, preferably by telephone.

The man's wife can have a positive, negative or neutral effect. The wife should be sized up at one of the pre-employment meetings. Management is, in a sense, hiring her, too.

The man's boss is a very important factor in his success. If the boss has been tested, then the chances of successful cooperation between the two should be

Social lubricity. This name is merely a convenient label that we attach to the scores measuring the capacity to deal with people. Cordiality, sympathy, appreciativeness and responsiveness are measured. Even if a man is fundamentally an S.O.B., he must be able to gain initial acceptance by a customer.

Emotional control. Is he dependable? Is he tenacious? Is there some nervous tension? Is he basically fair minded? These are the kinds of qualities picked up in the control area. If a man is aggressive but impulsive, then he is like a good kite without enough tail. If he is extremely sensitive, then he will not be an easy man to supervise.

A test for salesmen, then, should include measures of intelligence, sales ability, adjustment to self and to other people, drive, capacity to deal with people, and follow-through.

... In HIRING SALESMEN

fairly good. Otherwise, a man might not perform according to his test results because the two "gears" do not mesh.

WHAT CAN BE TESTED

Intelligence. The speed of thinking factor. What is the man's capacity to learn? Practical experience can, to an extent, compensate for a weakness in thinking speed. Experience on the job reduces the number of unfamiliar situations encountered, hence serves as a substitute for mental adaptability.

Persuasive ability. This ability is roughly synonymous with salesmanship. How well has the man learned to put his ideas and himself across?

Life adjustment. Does he have confidence? Does he believe in himself? How does he measure up in terms of social perspective and social skill? Can he take a setback gracefully or is he a grudge holder?

Personal drive. This quality is important. Brain power is nothing but amperage. Management wants to know the voltage of pressure behind the amperage. Many times a man with a low I.Q. receives a better rating because he is driving with his accelerator right down on the floor board.

What are the qualities of drive? In aptitude tests, four qualities are measured—optimism, activity, aggressiveness and purposefulness. Of the four, aggressiveness is the most important. It is the measure of how fast a man gets started. It is, perhaps, synonymous with "guts." The aggressive salesman isn't easily discouraged. He is the man most likely to get an order when the going is tough.

Through careful screening, through the function of executive judgment, and through the use of vocational adaptability tests, the Sadler firm points out, roughly five types of successful salesmen emerge:

1—*The guy with everything.* He has the requisite brain power, he is a self-starter, he can get along with people and he is dependable. If you are a sales manager, then this is the man who is likely to be your successor.

2—*The slugger.* He has everything except persistence. He sells by virtue of activity and drive. He is a good man to work a missionary territory.

3—*The plugger.* This one is relatively weak on aggressiveness, but compensates for it by being utterly dependable. He plans things right down to the last detail. If a customer says "no" then this is the guy who comes around a few days later to see if he really meant it.

4—*The sweet guy.* In the case of this man, drive and control are only so-so, but social lubrication is excellent. He loves people. People like him and they will buy from him. A good man for a low pressure, rural territory.

5—*G.O.K.* Nothing looks right on the test results, but the man sells. Why? Well, maybe his father-in-law is an important man in the territory. Maybe he has a family name that opens doors for him. The label G.O.K. means: "He sells, but how, God Only Knows."

In the last analysis, no test measurement is a substitute for executive judgement. But it can provide the judging executive with additional evidence on which to base his decisions. As pointed out earlier, tests do not eliminate error, but they do improve the executive batting average.

PRINTED FORMS...

...they can stop those profit leaks

THERE doubtless are hundreds of installation and service contractors in the commercial refrigeration and air conditioning field who regard bookkeeping as though it had no possible function beyond the realm of recording accounts receivable and payable. Even in that restricted category, they think of it as though it could be no more than a dull "history" of what is already finished—and as though it were exclusively a financial matter without practical operational applications.

Yet, one of the most important factors in the conduct of many exceptionally successful companies is the use of a system—based upon printed-form records—that is broad enough to guide and control virtually all of the activities of the business. Such systems are not necessarily complex; in small companies they can be extremely simple.

Of course, there is no way to determine which one of the many companies using such systems has the best, or which uses it the most wisely. Some of the best systems are used by firms which have other factors—such as poor location—going against them. In such cases the techniques of using rec-

Proper use of bookkeeping forms specially designed to meet your own individual requirements can prove to be a big help in controlling every phase of your operations to eliminate lost time, lost material, and lost dollars

ords as operational controls is doubly important; indeed, it may alone account for the difference between a modest profit and ultimate bankruptcy.

An extremely good example of a system used to control all operations of a small-to-medium sized concern has been used for about 10 years by Refrigeration Equipment Co., Pittsburgh. Three printed forms, and the way in which they are used, constitute the keystone of this company's business procedures.

First of the items is a set of cards of heavyweight ledger stock, 10" wide and 7" deep. One card is used for each size of each material or product that the company keeps on hand for sales or service.

For example, one card lists $\frac{1}{2}$ " galvanized elbows exclusively; a separate card is used for the $\frac{3}{4}$ " size.

These cards have 14 vertical ruled columns and 24 ruled horizontal open spaces. The first three columns are used to mark the quantity of goods ordered from a wholesaler, date of order and the subsequent quantity of goods received. The next three columns list the date, job number, and quantity of goods actually used on each job. The seventh column lists the quantity remaining on hand. The next seven columns are like the first seven, and both sides of the card are printed alike. Thus, each card can ultimately be used for 96 incoming and 96 outgoing entries.

At the foot of the cards is a space for listing (a) product name and size, (b) its symbol, (c) location, and (d) price. The latter entry represents the amount to be charged to customers, and is refigured as each incoming shipment arrives. Changes in the price are made by erasure of the previous marking.

Each card is kept in a separate drawer of a compact and relatively inexpensive steel office cabinet. The front of each drawer has a slide in which a marker is insert-

COMMERCIAL REFRIGERATOR SALES NEWS

Ice Cuber "Road Show" Sells 12 In 10 Days



LENT'S "ROAD SHOW" of Scotsman ice machines pulled out of Bremerton, Wash., early this summer under the direction of Barney Lee and Dan Ohrt (above). Trailer carried various models of ice machines, with wiring and hose facilities for point-of-use demonstrations of the equipment to meet the prospect's ice needs. Ten days later the two returned, having sold the trailer empty.

THAT you get results when you "take it to the people" was never more clearly demonstrated than by the sales record set by Lent's Refrigeration Co., Bremerton, Wash., Scotsman dealer for Super Cubers and Flakers.

Lent's decided to apply one of the most successful merchandising techniques known—"Demonstrate-Sell-Install"—to sell ice machines this summer. To do this, a four-wheel trailer was equipped with eight Scotsman ice machines of various sizes; a reel each for wiring and hose were installed for demonstration ease—only two simple connections were required at the prospect's place of business.

Then the trailer was hitched behind Lent's service truck and towed to the prospect's site. Sizing up the prospect's flaked or cubed ice requirements, Lent's demonstrated the appropriate Scotsman model. So persuasive is this type of selling that in the first 10 days, 12 Scotsman ice machines were sold right from the trailer stock.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

WHAT HANDLING DEVICES DO CASE DEALERS USE?

The types and variety of materials handling equipment used by commercial refrigeration distributors and dealers in their daily operations — moving heavy cases and coolers from their warehouses into trucks and then into the customer's store — are indicated in a survey of members completed recently by National Commercial Refrigerator Sales Association. Reports from 63 NCRSA members are covered in the survey.

While not all members reporting have the same types of equipment, in general the equipment mentioned in survey returns were:

Typical equipment in showroom or warehouses — lift elevator in back of showroom; incline elevator in shop or warehouse; portable elevators; electric or hydraulic hand trucks; truck-high platform at warehouse.

Truck equipment — fork lift trucks; skid boards of steel or aluminum; "A" frames; power or manually operated winches; hydraulic lift gates; low type trailers (similar to house trailer frame or chassis); hydraulic hoists with

6' x 8' platform; truck equipped with waterproof steel compartments built-in under truck body for skids, rollers, dollies, etc.

Equipment for lifting or rolling cases to or from truck at warehouse or store — rubber-tired two-wheel pry bars; two- and four-wheel dollies; pipe rollers; Johnson bars; roller-lift devices.

All but two of the members reporting said they deliver all or much of the equipment they sell, but about three-fourths said they turned over deliveries in certain areas to commercial trucking companies.

PROOF again of the dramatic benefits which food merchants can derive through the installation of new and modern refrigerated equipment is offered by the experience of Hudson's Grocery in Harrison, Ark.

Operated by C. N. and Doug Hudson, who have been in the grocery business in this community for the past 35 years, this store does an annual business of a quarter of a million dollars. Recently three new automatic defrost cabinets for the merchandising of frozen food were installed by Electric Utilities Corp. of Kansas City, Mo., and Tulsa, Okla.

Result? "Our sales of frozen foods for the first month after the installation of these cabinets was \$845," the Hudsons report, "whereas just the month before they were slightly under \$400. Our sales of packaged ice cream were up 100% also!"

FOOD SERVICE FIRM ANNOUNCES MERGER

Merger of Standard Factors Corp. and Nathan Straus-Duparquet, Inc., has been approved by directors of both firms, according to an announcement by T. H. Silbert, president of Standard Factors, and S. R. Sperans, president of Nathan Straus-Duparquet.

The consolidation, which brings together two companies whose services complement each other and enables the expansion of the activities of both, will continue under the name of Standard Factors Corp., and will now have financial resources in excess of \$25,000,000. The merger is subject to the approval of stockholders of both enterprises.

Nathan Straus-Duparquet, in business since 1866, is a leading

FOR EXTRA PROFIT—reach for FRIGIDAIRE Cleaners and Polishes before every service call



Frigidaire Nu-Coat — excellent for all rubber goods. Cleans and waxes refrigerator rubber door seals in one easy operation.

Frigidaire Porcelain Speed Cleaner removes dirt, stains and scorching from porcelain, tile or marble. Perfect for ranges, sinks, bathroom fixtures.

Frigidaire Surface Renewer — ideal for Dulux-finished refrigerators and other appliances—furniture, even automobiles. High luster, tough wax lasts for months.

Frigidaire Plastic Cleaner—cleans and protects plastic surfaces as well as stainless steel and chromium, too. Prolongs life, eliminates dust-collecting static.

FRIGIDAIRE specially prepared cleaners and polishes make even the best service job look better. They add a finishing touch and open the door to extra sales. For your customers will want to buy the same professional type of cleaners you use yourself.

And there are many other items in the Frigidaire line that can be turned into a source of profits, too—Quickube and Quick-Cubelet Ice Trays, refrigerator chilling and defrosting trays, condiment sets, pressure cookers and Kant-Slide Griddles for ranges.

See your Frigidaire Parts Distributor today for a supply of these proven sales-builders. Display them on your sales floor or parts counter—carry them with you on service calls and watch those "extra" sales tally up.

Frigidaire Cleaners and Polishes

Always specify, always use genuine Frigidaire Service Parts and Accessories

Circle No. 32 on Reader Service Card

NEW SUPERMARKETS feature — SUPER-SELL Displays by



You'll call **FEDERAL SUPER-SELL**
Displays **Faster, Easier!**

They offer more dynamic
sales-power - - greater display
capacity - - improved visibility
- - store-matching colors - -
store-wide beauty that build
store profits.

Below — New Federal
Model 5000 Double-Duty
Produce Cases at Fred
Montesi Supermarket No. 5
Memphis, Tenn.

*You're
Sales-Wise
to
Standardize —
Store-Wide —
on
Federal!*

Write for
select catalog
and prices on
Federal Store-Wide
Refrigeration.

producer and distributor of food
service equipment.

Consolidation of the two
companies will permit the enterprise to
expand time-sales financing busi-
ness with hotels and other estab-
lishments and at the same time
diversify the character of Standard
Factors' commercial finance and
factoring portfolio. Under the con-
solidation, Sperans will become
chairman of the board of Standard
Factors, while Silbert will be presi-
dent and chief executive officer.

"STAINLESS" AVAILABLE ON 26 NOR-LAKE UNITS

Stainless steel exterior are now
available from stock on all Nor-
Lake refrigeration products except
walk-in coolers and deluxe upright
freezers.

A total of 26 models in the Nor-
Lake line of dry bottle coolers, slid-
ing door beverage coolers, direct
draw taps, ice cube makers and
basement tap boxes are affected
by the change. They were previous-
ly available in standard baked
enamel finish only.

FOUR-MONTH SALES UP 9% OVER LAST YEAR

Sales of commercial refrigera-
tion and air conditioning equip-
ment distributors were up 9%
for the first four months of 1955
as compared to the same period of
1954, the U. S. Department of
Commerce reports. April sales
showed an increase of 6% over
those of March.

GLASS DOORS "CLOSE" OPEN-STYLE CASE

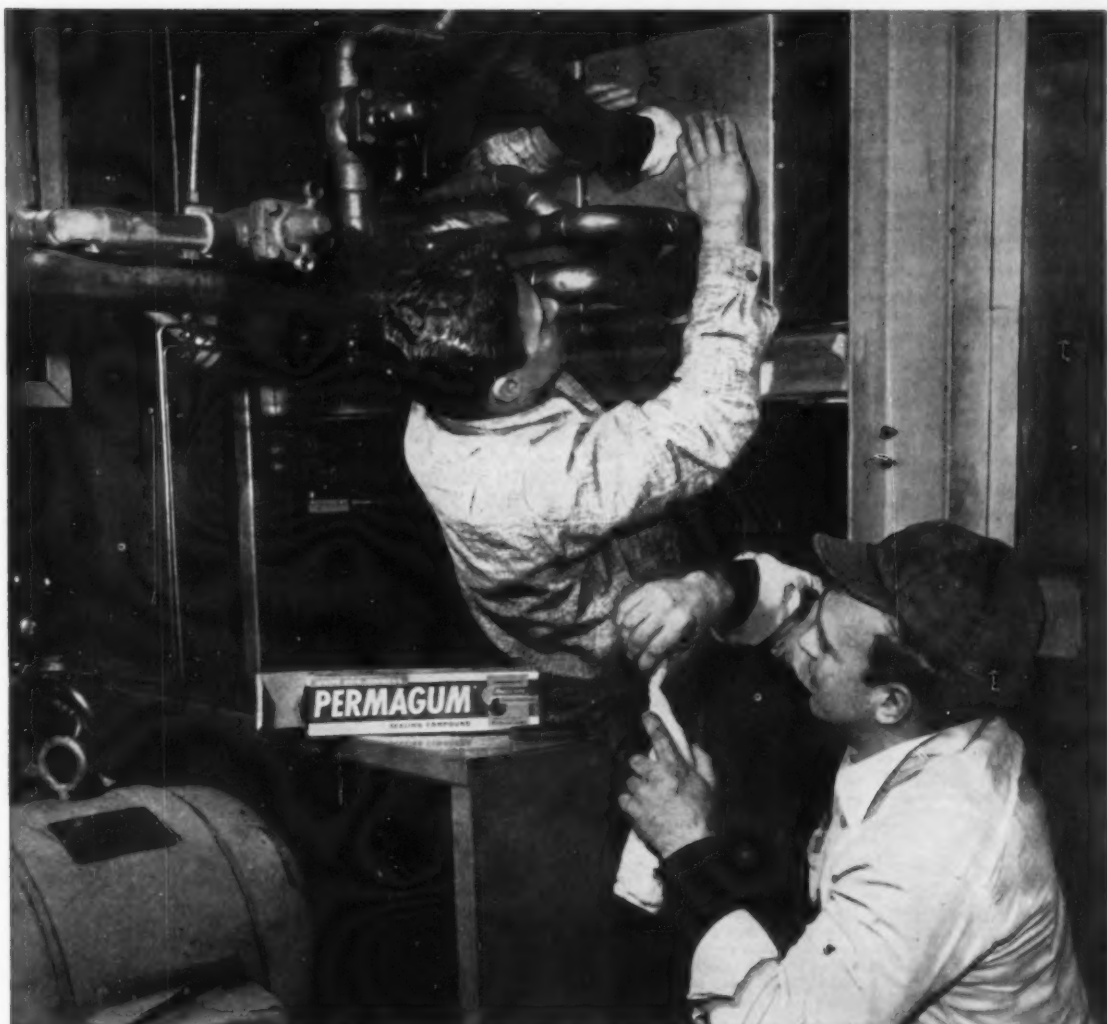
Heavy duty sliding glass doors
made by the Bally Case and Cool-
er Co., now make it possible to
convert the company's open-style
Servicold 96 refrigerated display
case to a closed-type vegetable
case.

The doors are made of 1/4"
thick Herculite polished plate glass
which has been tempered to make
it exceptionally strong and shock
proof. Use of the new doors re-
duces operating costs while at the
same time giving customers 100%
visibility.



FEDERAL REFRIGERATOR MFG. CO.

510 Elizabeth St., Waukesha, Wis.
Factories: Belleville, Waukesha, Wis.



Permagem makes a perfect seal every time

Manufacturers and service men alike prefer the positive sealing action they get from Permagem. Used to seal inspection plates, pipe and conduit openings, refrigeration and display cases, Permagem eliminates the host of troubles which condensation can bring down on your head—from just plain heat loss to ruined insulation.

These men are using gray-white Permagem, which is odorless, never hardens, and can be painted over immediately after application. Since it won't attack insulation, it is ideal for use around electric wiring, rubber or plastics. Brown Permagem is a heavy-duty sealer which will adhere to any dry surface and remain

pliable from 0° to 350°. Both forms come in 2½ lb. and 55 lb. slugs, while gray-white Permagem is also available in 80 ft. rolls of ¾" cords and 20 ft. rolls of ¾" cords.

Your wholesaler has Permagem—or write Refrigeration Division, VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.

VIRGINIA *Chemicals*

Available in Canada and many other countries
ESOTO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • V-METH-L
CAN-O-GAS • PERMAGUM • PRESSTITE TAPE • SUNISO REFRIGERATION OILS



Won't attack electrical insulation.



Seals pipe openings permanently.



Perfect for refrigerator and display cases.

ing door without any metal binding on the edges. Its strength also minimizes chances of breaking doors when they are removed during busy store hours, the company says.

APPOINTED BY BALLY

A. F. Briggs Co., Portland, Me. has been named sales representative of Bally Case and Cooler Co. in the Portland trading area and southern Maine.

JORDON EXTENDS TWO SALES TERRITORIES

Jordon Refrigerator Co. has extended the territories of two factory sales representatives to include additional states in the mid-west and west. W. Hirschberg will cover most parts of Kentucky and Indiana in addition to Michigan. N. Roossin has been appointed to cover California, Washington, Oregon and Nevada.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

Sales have to be Surefire

**WHEN SO MANY DEALERS
SELECT SODAMASTER BEVERAGE
DISPENSING EQUIPMENT AS A
FAST-MOVING SPECIALTY ITEM**



"I get a real charge out of this."

The reasons why Sodamaster Dealers enjoy such tremendous success are simple: (1) Each salesman carries the figures to present during the sale which prove that Sodamaster pays for itself in amazingly short order; and (2) Sodamaster solves major problems facing any customer who serves mixed or soft drinks. Rarely does an item carry these basic ingredients of a sale to such a convincing degree. And virtually every neighborhood tavern or cocktail lounge, restaurant, hotel, sports arena, public recreation and entertainment spot, is a first rate prospect for Sodamaster equipment.

PATENTED, EXCLUSIVE SODAMASTER FEATURES PROVIDE THESE POINTS OF SUPERIORITY

- The identical beverages previously obtained from bottles—with carbonation equal or higher.
- As much as 65% savings on bottled flavors, 95% savings on club soda.
- A variety of flavors, instantaneously, at the finger tips.
- Unmatched service speed, avoiding dissatisfaction and "walkouts" at rush periods.
- Elimination of costly, troublesome, time-consuming bottle handling.
- Uniform coldness and perfect proportions of beverages, automatically.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Sodamaster, Mix-Monitor Faucet and Supercharger Carbonator Equipment.

Name _____

Address _____

City _____

State _____

CARBONIC CD

DISPENSER INC.

CANFIELD, OHIO



West Coast Plant: 1851 Randolph St., Los Angeles, Calif.
IN CANADA: GENERAL EQUIPMENT CORP., LTD., TORONTO, ONT.

Circle No. 35 on Reader Service Card

CREDIT DATA...

Continued from page 41

call can be used to further amplify this information.

The salesman should by all means make a note of the bank on which the customer draws his down payment check. This information provides one additional credit reference.

So far the salesman has analyzed the nature of the customer's business, and he also has obtained a record of the customer's equipment obligations, the name of his bank, some trade references, and identification of his principal suppliers of merchandise. Now, in addition to all this, the dealer's credit department would like to have some idea of the customer's volume of business and his net worth.

Put Pride to Work

This isn't anywhere near as tough as it might sound. Almost every owner of a business is proud of that business, whether it be large or small. If the salesman has had any selling experience at all, he should be able to quickly estimate the store's average volume. If he cuts this figure in half and then asks the store owner if his volume is approximately so many dollars, the owner's pride generally will force him to come out with the true sales figure. Then the salesman can further bolster the customer's pride by complimenting him on his volume of business.

The salesman then can ask the owner how long he has been in business, and if he owns the business himself or if he has partners. These are natural follow-up questions.

Up to this point the salesman still has not pulled out of his briefcase any sort of a credit application form. Yet any credit manager worthy of the name, presented with all of this information developed by the salesman, should be able to verify the necessary facts and make a prompt decision with respect to the extension of credit to this particular customer.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

Brewers specify **Laykold** Asphalt Adhesives for Cold Storage Construction

In brewing, as in other processes, controlled temperature is of vital importance. In the Fermenting (Borsari) Cellars, in the Aging Cellars, and in the Government Cellars, temperature control must be maintained.

Brewing is a fast-growing industry, particularly in the West, where the beer-makers are currently spending close to 100 million dollars on plant construction. In building to accommodate this large-scale, highly complex industrial process, the most modern methods and materials are being specified.

For example, Laykold Insulation Adhesive is used to hold a membrane of aluminum foil in place in one step in the construction of the refrigerated areas in two of the newest and largest breweries. Laykold Insulation Adhesive is unique in its ability to economically seal and hold this metallic vapor barrier which is applied ahead of the Fiberglass insulation.

Applied cold, by brush, trowel or spray, Laykold Insulation Adhesive and Laykold Weathercoat materially increase the speed of construction, yet help to hold costs down.

No matter what your product, we will welcome an opportunity to furnish full technical data regarding the use of Laykold asphaltic products for refrigerated construction.

**AMERICAN
Bitumuls & Asphalt
COMPANY**

200 BUSH ST. • SAN FRANCISCO 4, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md.
Mobile, Ala. Cincinnati 38, Ohio Columbus 15, Ohio
Tucson, Ariz. Seattle, Wash. Boston Rouge 2, La.
St. Louis 17, Mo. Inglenwood, Calif. Oakland 1, Calif.
Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.



Serve yourself more profit!

...with **HIRSH** *Showline*
SELF-SERVICE SHELVING!



Mail the coupon today for FREE literature!

made by



the people who
know self-service best

When you contact food stores, you can close more and larger sales, make more money, and secure more new business leads by selling Hirsh Showline Self-Service Shelving in addition to refrigerated equipment. Showline gives you a competitive edge when you're bidding, adds to your reputation as a store fixture expert when the job is done, and increases your profits without increasing sales expense. Showline is known, preferred, and pre-sold through national trade advertising, and requires no special skill to specify or install.

- streamlined design • beautiful Hirshwood shelves
- push button shelf adjustability • comes complete
- super strong steel construction • low cost

Dealers! A few protected territories are still available. Write for details!

S. A. HIRSH MFG. CO.

CR-10

8051 Central Park Avenue, Skokie, Illinois

Gentlemen: Please send me complete information about selling Hirsh Showline Shelving.

NAME _____

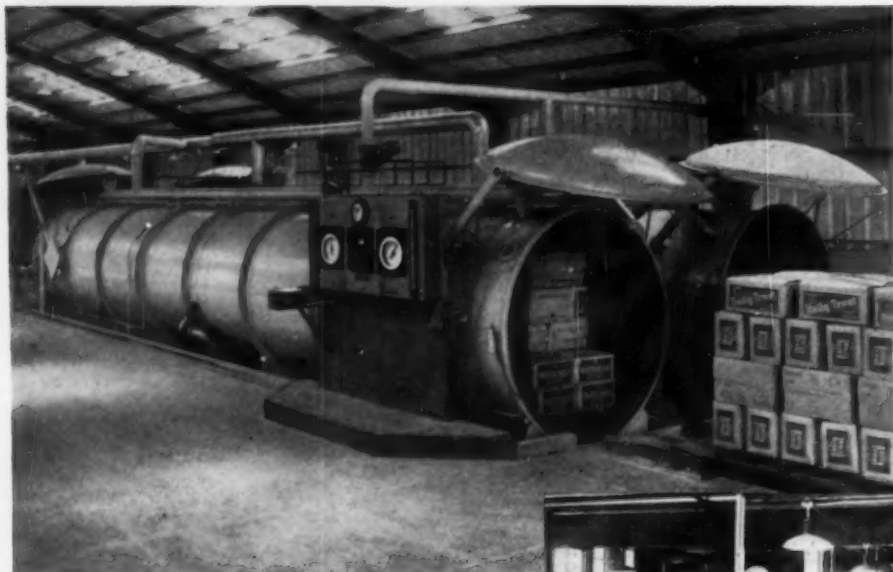
COMPANY _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____



FLASH COOLING this boxed-in-the-field lettuce takes only 18 minutes, helps get it to market quicker, fresher. West Coast Pre-Cooling Company, Watsonville, California, operates one of the country's most modern and best equipped refrigerating plants.

How Texaco helps bring in MORE "LETTUCE" FROM LETTUCE



CLEAN, dependable compressor performance — West Coast Pre-Cooling Company assures it by lubricating these Vilter V-type ammonia compressors with *Texaco Capella Oil (Waxfree)*. In fact, exclusive use of Texaco Lubricants assures top efficiency for all machinery at West Coast Pre-Cooling Company.

CRISP, garden-fresh lettuce commands top price in the market — and growers around Watsonville, California, are mighty glad to have West Coast Pre-Cooling Company's new and up-to-the-minute flash cooling plant to help them get more "lettuce" from lettuce. Frank Uvodich, West Coast's Plant Manager, explains it this way:

"Fresh lettuce, boxed in the field, is trucked directly to our plant. We flash cool it down to 33° F. in just 18 minutes. Then the refrigerator car keeps it cool and fresh — no need for extra icing of the crates. Naturally, our plant compressors must run at highest efficiency and *Texaco Capella Oil (Waxfree)* assures us the clean, dependable operation we must have."

Texaco Capella Oil (Waxfree) is the lubricant that won't precipitate wax in refrigerating systems — even down to minus 100° F. It has exceptionally low haze and floc temperatures, extra stability and resistance to oxidation. In addition, it's moisture free, won't foam and is compatible with all refrigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)*. A Texaco Lubrication Engineer will gladly recommend the one best suited to your operation. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States or write:

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

TUNE IN... TEXACO STAR THEATER starring JIMMY DURANTE on television... Saturday nights, NBC.

Circle No. 38 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION

CONTRACTORS

NEWS • ACTIVITIES • PLANS

New RACCA Policy Places All National Programs in Hands of Local Associations

THE headquarters office of the Refrigeration and Air Conditioning Contractors Association has announced that all future national programs and campaigns will be conducted through local associations. This important change in policy is designed to bring about a closer tie between the local and the national associations, and to tie down responsibility in getting the job done.

In addition, it is believed this procedure will prove valuable in providing interest and important material for local association meetings, and in stimulating attendance of local members, according to executive vice president Ray Kromer.

According to the national office's plan, the program will operate as follows:

On the first of each month (starting in September), each local association president will receive a kit of materials from national headquarters. The kit will include detailed information on the current national program with suggestions for local participation, a suggested agenda for this part of the local meeting, and material or survey form that members may record their impression and thinking on the subject after discussion.

The September information kit contained a complete report on a suggested welfare plan for contractors and their employees. According to Kromer, this is a popular move among associations, as group insurance is usually not available to organizations numbering less than 10, and in most states less than 25 individuals. The suggested welfare plan within the association would cover all employees as well as mechanics,

and would take the place of proposed joint welfare plans, which cover the mechanics only.

Opinion of members, as reported by local associations, will determine the interest of the national association in following through with the plan, Kromer said.

Material of the proposed welfare plan will be forwarded to individual direct members in areas where local associations do not exist, Kromer added.

COOLING LOAD FORMS AVAILABLE IN PADS

The Cooling Load Estimate Form for Self-Contained Air-Conditioners published by the Air-Conditioning and Refrigeration

Institute is now available in pads or tablets.

The forms were previously published only as part of the ARI Standards for Self-Contained Air-Conditioners.

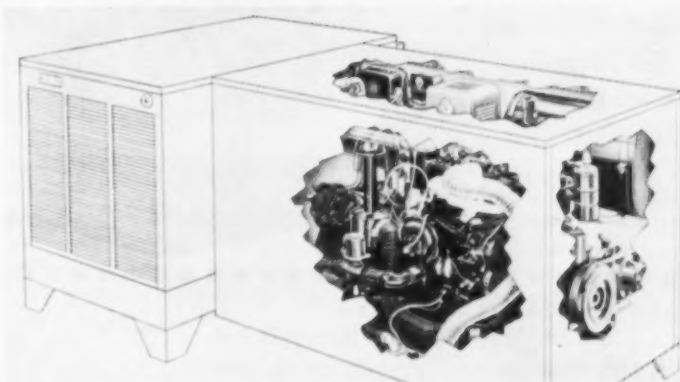
Bound in tablets of 50 forms with instructions on the inside front cover, the cooling-load pads are available from ARI, 1346 Connecticut Ave., N.W., Washington 6, D.C., at \$1 each.

VA. GROUP TO COMBAT PROPOSED STATE LAW

A Virginia state meeting of refrigeration and air conditioning men, held recently at the John Marshall Hotel in Richmond, Va., culminated in the formation of the Virginia State Refrigeration Trade Association and the appointment of a special committee to coordinate activities on a statewide basis.

The immediate aim of the organization it was explained, is to rally all refrigeration and air conditioning interests in the state "in order to combat proposed legislation which would in effect make the refrigeration and air conditioning contractor-subservient to the plumbing and heating interests; and that would require the refrigeration man to pass an examination and certification by a board as a plumbing or heating

GAS MOTOR POWERS NEW AIR CONDITIONER



GAS-MOTORED air conditioning unit, as designed for manufacture by Cobell Industries, Inc., Fort Worth, Texas, is enclosed in two cabinets for exterior installation. Compressor section, shown in cut-away view, includes reciprocating motor using either LP or natural gas as fuel. Special clutch permits power unit to attain a speed of about 1000 rpm before engaging the compressor. Adjoining cabinet contains "Aqua-Fog" condensing unit (which was pictured and described in the April 1955 issue of *Commercial Refrigeration & Air Conditioning*.) Complete unit was exhibited recently at annual convention of Liquefied Petroleum Association. Cobell has announced 100 are to be supplied to gas companies for field testing, and that commercial production will begin with 1956 models, originally in 3 to 10-ton sizes.

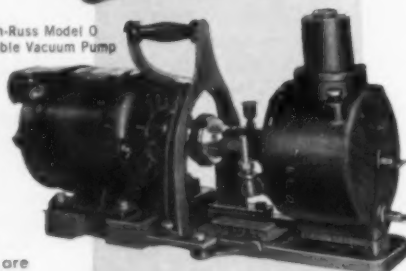
**Whatever
Your
Vacuum
Needs...**

**BEACH-
RUSS
Can Meet
Them**



Beach-Russ #5
Type RV Vacuum Pump

Beach-Russ Model Q
Portable Vacuum Pump



Beach-Russ High Vacuum Pumps are available in a complete range of types and sizes to meet any vacuum need. From the smallest 1 c.f.m. portable unit for testing and dehydrating work, to the large 1800 c.f.m. units for process operations, these precision-built

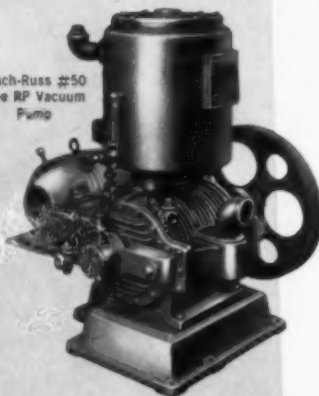
BEACH-RUSS Vacuum Pumps

give

**Fast "Pump-Down"
High Efficiencies
Quiet, Vibrationless Operation
Long Service Life**

If you are planning a new installation or are in need of technical advice, get in touch with Beach-Russ.

Beach-Russ #50
Type RP Vacuum
Pump



Mail Today!

BEACH-RUSS COMPANY

• 50 Church Street • New York 7, N. Y. Dept. 56

☐ We are interested in Beach-Russ Vacuum Pumps for

☐ Send _____ copies of General Bulletin No. 89.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE No. _____ STATE _____

Circle No. 39 on Reader Service Card

and air conditioning contractor or both."

The bill for the examination and certification of plumbing, heating and air conditioning contractors was recently proposed by the Virginia Associated Plumbing and Heating Contractors.

The ultimate aim of the Virginia State Refrigeration Trade Association, however, will be "to sponsor a refrigeration and air conditioning licensing bill which will in effect (a) give the refrigeration contractor the legal right to engage in the business, and (b) not to encroach upon the interests of the plumbing-heating firm."

The meeting of refrigeration men, representing a large part

HERE'S a sales point to use on customers who believe they can't afford to own central cooling units.

According to a set of figures compiled by General Electric's home heating and cooling department, owning costs for home cooling are appreciably lower than owning costs for various other popular consumer products for the home. The figures, listed below, were obtained by dividing the initial cost of these products by the number of hours per year they are used, to give the owning cost in dollars per hour.

Products	Owning Cost (Dollars per hour)
Automobile	\$3.40
Power Lawn Mower	1.42
Central Air Conditioning	.30

These figures indicate that owning cost for central air conditioning is four times cheaper than a power lawn mower, more than ten times cheaper than an automobile and that it takes relatively a smaller amount of money to own air conditioning than most people used to think.

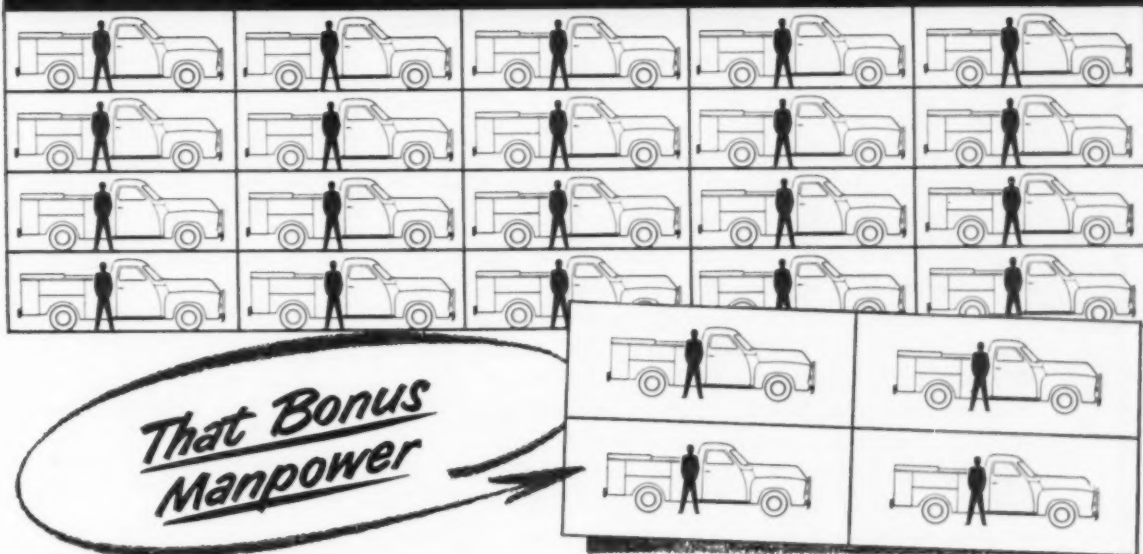
of Virginia state, was instigated by a widely circularized letter from Sam Pollock, northern Virginia contractor, who publicized the proposed plumbers' legislation and suggested action on the part of refrigeration men. Interested persons are members of R.T.A. from Baltimore, Philadelphia, Washington, D.C., and officials from the North Carolina State R. T.A. were also in attendance.

An address by North Carolina state representative Clarence E. Stone Jr. was of particular interest, as North Carolina was the first state to adopt a licensing bill.

Stone urged similar action on

20 Service Trucks=24

WITH RCA RADIO DISPATCHED SERVICE
IN A REFRIGERATION FLEET



A well-known Maryland refrigeration service organization has reduced downtime of customers' equipment and increased customer good will by installing

RCA 2-Way Radio equipment in its 20-man truck squadron. "When we put in our 2-Way communication system we gained the effectiveness of a 24-man unit—complete with trucks and equipment!" declares the service manager.

This company figures their 20 service

men make 30 additional calls per day, which is the equivalent of 4 extra men and trucks. The average travel per call is cut from 3 miles to 2.5 miles, while the average number of calls per man per day has been increased from 7.5 to 9. In addition, telephone expense has been reduced, new customers have been obtained, office paper work has been cut to a minimum—all this at a saving of nearly \$5000 per year, while paying for the cost of the equipment.

You'll be surprised at the difference the installation of RCA 2-Way Radio

communication will make in your operation. Drivers can call the office as well as receive calls from the office. Doubling back to make calls, or stopping to telephone is unnecessary. The dispatcher has control he never before thought possible! And regular office personnel can operate the radio—it's just as easy to use as your telephone. The RCA reputation for all-out excellence of equipment assures long life and trouble-free performance.

The RCA Service Company provides installation and service on a nationwide basis if desired.



**RADIO CORPORATION
of AMERICA**

COMMUNICATIONS EQUIPMENT
CAMDEN, N. J.

— USE HANDY COUPON FOR INFORMATION —

Radio Corporation of America
Communications Equipment
Dept. X-261, Building 15-1, Camden, N. J.

- ☐ Please send me reprint of article, "Baltimore Saves More Than Money with Radio-Controlled Cooler Service," which supports above statements.
☐ Please have an RCA Communications Specialist call.

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____ COUNTY _____
CITY _____ ZONE _____ STATE _____

Circle No. 40 on Reader Service Card

Put a **PERMANENT**

STOP

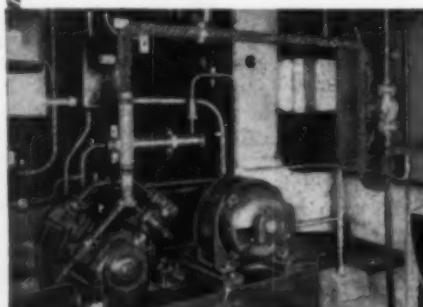
**to Condensation Drip
Rust and Corrosion**

**WITH THIS PLIABLE,
CORK-FILLED,
MOISTURE-PROOF,
SELF-ADHERING
SEALER**



Cold water pipe or tubing condensation drip is messy, costly, often dangerous. Unheeded, the result is loss of valuable equipment, piping and connections rust and corrode, requiring frequent replacement, and hazardous conditions exist.

NoDrip Tape has been successfully used for years to *correct* and *control* this needless waste. Easily applied by winding spirally around pipes and tubing, NoDrip Tape becomes a *permanent* sealed jacket...without "extra" vapor-seal tapes or overwraps. Requires no bands, brads or fasteners because it's self-adhering. In addition, NoDrip Tape holds temperatures more steady, reduces icing and frosting of lines. Equally effective on any pipe or tubing, iron, brass, copper or other alloy.



\$1.69 list a roll Higher west
of Rockies and Canada.
(Subject to usual trade discounts)

FREE! Bulletin D-40

J. W. MORTELL COMPANY
553 Burch St., Kenosha, Ill., Dept. 10
Please send me FREE copy of Bulletin D-40
Name.....
Address.....
City.....State.....

Typical Coverage Per Roll

I.D. Iron Pipe:	10' of 1/2"
	8' of 3/4"
	6 1/2' of 1"
O.D. Copper Tubing:	13' of 1/2"
	11' of 3/4"
	9 1/2' of 1"
	8 1/2' of 1 1/4"



the part of the Virginia contractors. Also in attendance was Virginia state representative Joseph J. Williams Jr., L. L. Carter, president of the Refrigeration Trade Association of America, described the association's activities in various areas.

Richard H. Catlett of the Catlett-Johnson Corp., Richmond, was acting chairman of the meeting. Some of the Virginia areas represented were: Richmond, Charlottesville, South Norfolk, Warwick, Danville, Harrisonburg, Roanoke, and Arlington.

Sam Pollock was elected temporary chairman of the new organization. Other temporary officers elected were: John J. Kraftt, Kraftt-Inlay Co., Arlington, secretary, and Stanford Bernhard, Robt. M. Dunville and Bros., Roanoke, treasurer.

Members appointed to the special committee were:

John J. Kraftt, Arlington; S. R. Heatwale, Harrisonburg; J. R. Winslow, Arlington; F. C. Oliver, Richmond; Stanford Bernhard, Roanoke; James P. Morgan, Danville; W. W. Poindexter, Warwick; T. K. Gery, South Norfolk; and Paul L. Carr, Charlottesville.

**WASHINGTON GETS HUGE
CHILLED WATER SYSTEM**

York Corp. has started construction of a giant cooling system to be installed in the capitol power plant in Washington, D.C., from which it will serve the air conditioning systems in seven large government buildings within a two-mile circle.

Four large centrifugal refrigeration units using about 10,000 hp will provide chilled water to a loop system holding about 600,000 gallons. Government engineers say it is the largest hydraulic refrigeration system of its kind in the world.



Circle No. 41 on Reader Service Card

Sign Up **SPORLAN'S CHAMPIONSHIP TEAM**
for
PEAK PERFORMANCE
throughout your entire
AIR CONDITIONING
SEASON

Because
like any Top Team
SPORLAN
offers you
PEAK PERFORMANCE
at Every Position...
in the AIR CONDITIONING FIELD



SPORLAN



Position 1

The Catch-All is the perfect filter-drier, assuring you clean, dry, acid-free, sludge-free refrigerant!

Position 2

Nothing can touch the Peak Performance of Sporlan's Solenoid Valves. They're tight closing, their coils are layer wound and so well insulated, they defy electrical failure!

Position 3

No hunting here, thanks to Sporlan's Thermostatic Expansion Valves with Flow Master elements. You can be sure of Peak Performance without ever worrying again about alternately flooded and starved evaporators!

Position 4

Sporlan Peak Performance Distributors have a perfectly designed nozzle and conical button to assure uniform distribution to all circuits.

So Remember, when you're lining up your positions for a championship air conditioning team...Buy Sporlan Right-Down-The-Line and get Peak Performance throughout your entire air conditioning season.

SPORLAN VALVE COMPANY

7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI
Export Department: 89 Broad Street, New York 4, New York

CURTAIN GOING UP . . .

on the

KRAMER



THERMOBANK

The "L" Thermobank is a new kind of a Thermobank — a great product now made even greater by the originators of the automatic hot gas defrost system. It opens new opportunities in the low temperature field.



KRAMER TRENTON CO. • Trenton 5, N.J.

USEFUL

BULLETINS • BOOKLETS • CATALOGS

THREE NEW CATALOGS on "Armoglas" insulation have been released by Armstrong Cork Co. The first catalog gives information on the company's duct insulations, the second tells about insulations for low temperature rooms, and the third deals with various kinds of pipe covering, metal mesh blankets, block insulation and insulating wool. Each of the two-color booklets gives complete specifications, packaging data and thermal conductivity charts.

Circle No. 91 on Reader Service Card

PROPERTIES of Nafil foamed resin are given and its suggested uses as insulation, acoustical, or shock absorbing material are outlined in a four-page technical bulletin issued by Chase Chemical Corp. The folder gives complete technical data as well as performance characteristics.

Circle No. 92 on Reader Service Card

COMPLETE LINE of beverage and display cases is shown and pertinent technical information is given in a new 18-page catalog issued by Evans Mfg. Co. Illustrated with photographs and drawings, the two-color catalog provides complete specifications and product features and includes a separate price list.

Circle No. 93 on Reader Service Card

UNION BONNET-TYPE VALVES are featured in a four-page folder published by Ohio Injector Co. The two-color booklet (No. 1006) gives complete specifications and dimensional data and is illustrated with cut-away drawings showing valve features and interior construction. One page is devoted to a pictorial listing of available literature on the company's other valve lines.

Circle No. 94 on Reader Service Card

GLASS-LIKE LINING for pipes and tanks is the subject of an eight-page folder distributed by Sudbury Laboratory. Both text and photographs describe benefits derived from use of "Aqua-Clear" process in homes as well as in industrial applications. The two-color folder also provides details on how the process prevents rust and corrosion and describes its protective qualities on various metals used in water systems.

Circle No. 95 on Reader Service Card

TECHNICAL BROCHURE, complete with flow charts, on "ElectroFlo", an electrically operated valve for controlling large flow volume is now available from Hays Mfg. Co. The eight-page folder (No. 210) gives complete data including product features, specifications and dimensional charts.

Circle No. 96 on Reader Service Card

UNIT COOLERS are featured and complete performance and application data is given in a new four-page, two color folder published by Tenney Engineering, Inc. Illustrated with photographs and drawings, the bulletin (No. 109-55) also presents the "three-step installation" technique which features simple slide rail template mounting.

Circle No. 97 on Reader Service Card

(More Useful Literature on page 62)

New! Really Compact!

drayer-hanson SPOTAIRE-LRC Air Conditioning

*



...already set for new Lady Luck Hotel, Las Vegas
*rendering courtesy Architect Homer Kinsman



LRC Basic Unit



LRC Concealed Cabinet



No individual-room equipment for complete air conditioning of multi-room structures allows such design freedom for the architect... achieves such "pin-drop" quietness of operation!

Eye-opening... new D-H Spotaire LRC's require just 11 1/2" head-room from ceiling; provide your best answer for low-cost, individual room air conditioning. 3-speed controls. For cooling, heating, dehumidifying, filtering. Old or new construction.

There's also a full LRC story — installation — operation — no-maintenance — you should know about...

Request catalog L.P. 5.220

drayer-hanson
INCORPORATED

3301 Medford Street • Los Angeles 63, California
(Subsidiary of National U.S. Radiator Corporation)

Circle No. 44 on Reader Service Card

336,000

miles of extrusions!



Our extruders have turned out enough plastic and rubber extrusions to reach to the moon and halfway back. In compiling this vast experience General Tire's Industrial Products Division has supplied thousands of original equipment manufacturers with just about every known type of extrusion. No job is too large, too small or too complicated for our design and production staff. Perhaps you can benefit from the fantastic extrusion mileage we've accumulated down through the years.

For literature or further information write to The General Tire & Rubber Company, Wabash, Indiana, Department B-1.

*"From Plans to Products
in Plastics and Rubber"*



Circle No. 45 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 61

INDUSTRIAL OPERATIONS performed by chilling equipment and test chambers are described in a new 12-page catalog of Cincinnati Sub-Zero Products. Seven models of chilling machines and four models of industrial temperature testing units are illustrated. Specifications and complete descriptions for each unit are furnished as well as technical data and charts concerning metal treatment and application of units to industrial processes.

Circle No. 98 on Reader Service Card

DESIGN AND PERFORMANCE characteristics of its "New Yorker" delicatessen display-and-storage case are described in a new specification sheet issued by Warren Co., Inc. Illustrated with photographs and engineering drawings the bulletin (C3DS) summarizes features, dimensions and construction details.

Circle No. 99 on Reader Service Card

HIGH VACUUM PUMPS are pictured and described in a new 52-page, complete line, catalog available from Kinney Mfg. Div., New York Air Brake Co. Designated No. 425, the two color catalog features an engineering section containing formulae and data of practical value to all vacuum engineers. Profusely illustrated, the book contains many cutaway drawings, diagrams, graphs, performance curves, installation pictures, tabulations of data, conversion tables, charts and formulae. The publication is said to be actually a comprehensive vacuum engineering reference book.

Circle No. 100 on Reader Service Card

USES AND CONSTRUCTION characteristics of their new quick-connect disconnect coupling are described in a four-page, two color bulletin (#230) of Snap-Tite, Inc. A fully-detailed cut-away of the coupling is incorporated into the bulletin which also lists complete dimensions and ordering information for all "Hi-Flow" couplings and parts.

Circle No. 101 on Reader Service Card

HUNDREDS OF USES OF FELT are described, with particular emphasis on mechanical applications, in a technical brochure published by Felters Co. The "Design Book" explains the design properties of mechanical felts and tells how they are used for friction, cushioning, filtering, insulating, sealing, spacing and wicking. The brochure also contains tables showing dimensions, tolerances and comparative costs as well as a section on how to select the proper felt.

Circle No. 102 on Reader Service Card

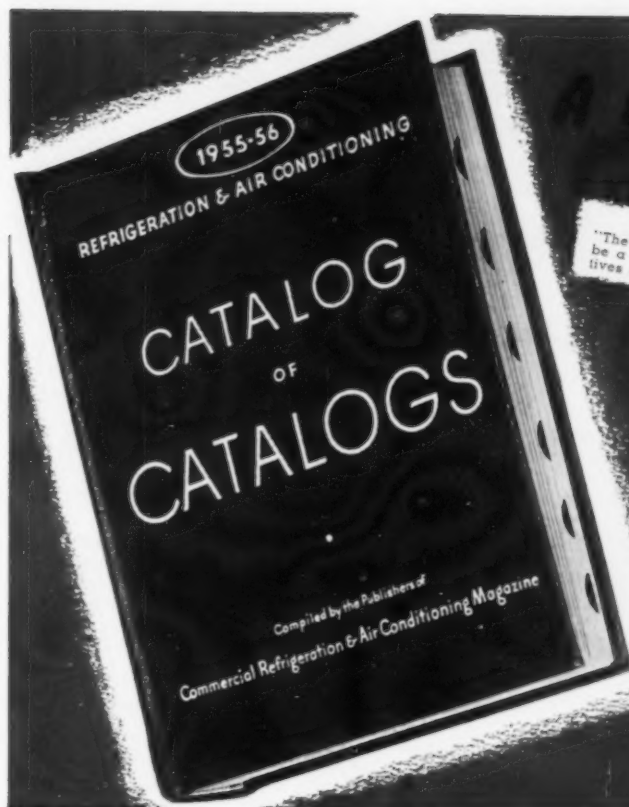
PORTABLE POTENTIOMETER, for checking installations of temperature measurement and control instruments, is the subject of a new bulletin (F-5760-1) issued by Wheelco Instruments Div., Barber-Colman Co. The bulletin itemizes features, provides complete specifications and dimensional data and includes charts showing standard and special ranges.

Circle No. 103 on Reader Service Card

OVERLAP CONSTRUCTION used in their line of freezers, coolers and hardening rooms is discussed in a new catalog of Reco Sales & Engineering Corp. The patented construction is claimed to be simple, strong, and flexible and to have all the advantages of finest built-in construction.

Circle No. 104 on Reader Service Card

(See page 92 for Air Conditioning Literature)



A HIT!

"... congratulations ... on a splendid job well done ..."

"... we find that it has taken a giant first step in providing the type of information that users of commercial refrigeration and air conditioning equipment need most."

"The 1955/56 Catalog of Catalogs will be a valuable asset to the representatives of our company ..."

"... a well organized reference ... just what we need ..."

THIS IMPORTANT REFERENCE CATALOG

— the first volume of its kind — bound in a durable hard cover — has had immediate acceptance by the industry. This single volume combines all the product specifications and data of commercial refrigeration and air conditioning equipment, both packaged and remotely installed, as well as all the components of each unit and system. Manufacturers present their own catalog and specification sheets in this format.

AIR CONDITIONING EQUIPMENT SECTION

Bound-in manufacturers' catalogs or specifications sheets, with working technical data and source listings. The feature of this section is the comparative specification listings of 1955 lines of room, store, and residential air conditioners. These are presented in the same manner as that of previous years, which has been so successful, and used by so many thousands of men in this field.

COMPONENT SECTION

General engineering, contracting, and architectural working data, including comprehensive listings of components and accessories. Information to aid in the application of equipment in refrigerated or air conditioned areas. Bound-in manufacturers' catalogs and specifications sheets.

CASE AND FIXTURE SECTION

Refrigerated case manufacturers' catalogs and specifications sheets answering problems in the application of packaged and remotely installed cases and coolers for merchandising or storage of all types of food and beverage products. Blueprints of practical store plans for typical food market layouts. Listings of manufacturers of this equipment.

"WHERE TO BUY LOCALLY" — Wholesaler Section

Listing by geographical area, the independent local outlets for refrigeration and air conditioning equipment and supplies. Printed on yellow stock and carefully collated to aid in establishing local purchasing sources.

Collated by the Publishers of

Commercial Refrigeration & Air Conditioning

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CLEVELAND 13, OHIO

Refrigeration & Air Conditioning **CATALOG OF CATALOGS**
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PER VOLUME

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

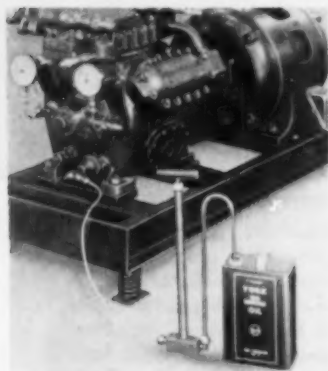
(For Air Conditioning Products turn to page 95)

Oil Charging Pump

Product: Improved pump for charging oil by hand into Freon or ammonia compressors.

Manufacturer: York Corp., York, Pa.

Features: Eliminates necessity of pumping a vacuum on crankcase and prevents admission of air into crankcase which eventually enters condenser and builds up excessive pres-



ures, resulting in less efficient operation. Offers increased pump capacity and improved valve design. Compact unit fits any toolbox and can be used with one-gallon or five-gallon cans. Suction tube extends nearly to bottom of can preventing air from entering system while tube is immersed. Threaded outlet, protected by a cap when not in use, fits standard $\frac{3}{8}$ " charging connection.

Circle No. 151 on Reader Service Card

Heat Exchanger

Product: "Panel casing aero" heat exchanger for water saving and temperature control in industrial cooling.

Manufacturer: Niagara Blower Co., New York.

Features: Patented machine cools by evaporation and obtains temperature control by modulating the use of outdoor air. Casing is shipped as flat panels and equipment is designed to be completely

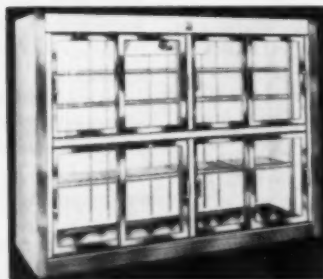
assembled on installation site. Coil sections are assembled over tank and are enclosed in removable panels. Unit may be installed anywhere and is available in four sizes affording capacities from 7,000,000 to 18,000,000 Btu/hr under standard conditions. Maximum space required in ground plan is 194" x 140 $\frac{1}{2}$ "; in height 125 $\frac{5}{8}$ ". Weight range is from approximately 9300 to 20,500 lbs.

Circle No. 152 on Reader Service Card

Wide-view Wall Cases

Product: Stainless steel trimmed dairy and beverage wall cases.

Manufacturer: Frigid Igloo Mfg. Corp., Yonkers, N. Y.



Features: All steel welded construction with "Lacoa" interior and exterior made to standard Igloo specifications. Unit has adjustable wire shelves, rubber channel around thermopane in sliding doors and overall illumination. Remote and self-contained models available in 53", 72", 96" and 139" lengths.

Circle No. 153 on Reader Service Card

Pie Storage Case

Product: New type of refrigerated pie storage case to aid distribution of cream pies in hot weather.

Manufacturer: Bally Case & Cooler Co., Bally, Pa.

Features: Designed for installation in trucks, the case measures 44 $\frac{3}{4}$ " high, 24 $\frac{1}{2}$ " deep, and 31"

long. It has room for 20 tray slides which will hold 40 pies. Temperature within cabinet is thermostatically controlled. The new case will



be useful to pie bakers throughout the country, and particularly in the southern and western areas where high temperatures are common.

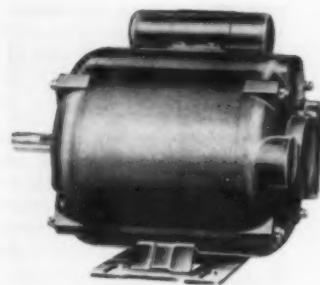
Circle No. 154 on Reader Service Card

Single-Phase Motors

Product: New line of single-phase fractional hp motors with ball bearings and dual-voltage windings.

Manufacturer: Acec Electric Corp., New York.

Features: Motors are equipped with ball bearings and have aluminum-injection molded, one piece squirrel cage rotors, dynamically balanced for vibration-free operation. Stator has a high efficiency core of



lamination precision punched from electrical sheet steel. Available in $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ hp sizes with 1200, 1800, and 3600 rpm ratings, for 115 or 230 volt, 60-cycle power supplies.

Circle No. 155 on Reader Service Card

Flow Indicator

Product: Model FI-200 flow indicator to indicate flow or lack of flow of liquid through pipe lines.

Manufacturer: Gems Co., Newington, Conn.

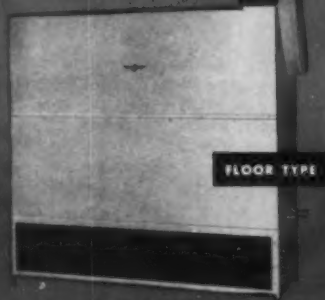
Features: Flow of liquid through

LARKIN

IS THE LINE

Of commercial and industrial refrigeration and air conditioning equipment

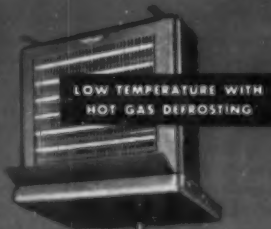
HUMI-TEMP UNITS



FLOOR TYPE



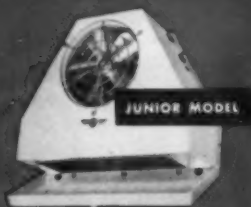
TURRET AND
HALF TURRET



LOW TEMPERATURE WITH
HOT GAS DEFROSTING



STANDARD



JUNIOR MODEL



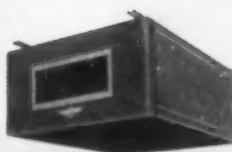
LOW CEILING



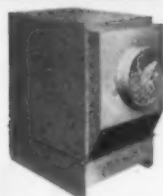
SANTAM UNIT



LOW BOY



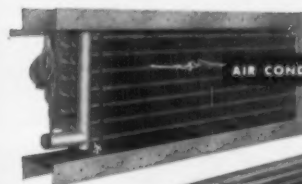
COMFORT CONDITIONER



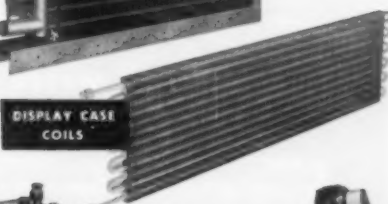
WATER-SAVER
COOLING TOWERS



HEAT EXCHANGERS



AIR CONDITIONING COILS



DISPLAY CASE
COILS



DIRECT EXPANSION
WATER COOLERS



AIR CONDITIONING UNITS



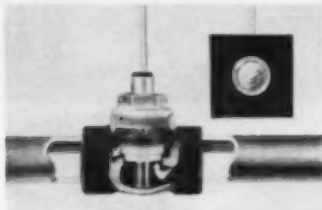
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LARKIN COILS INC.

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the unit actuates a switch that operates pilot light, horn or other warning signal. Can also be used to operate preventive interlocks. Made of marine bronze and plastic that are chemically inert to oil, fuels



and salt water. Body of indicator is a standard pipe fitting for quick installation. Unit accommodates standard pipe sizes from 1/4" to 3". Circle No. 156 on Reader Service Card

Improved Carbonator

Product: Improved "Bantam-100" high-capacity instantaneous carbonator.

Manufacturer: Temprite Products Corp., Birmingham, Mich.

Features: Waterproofed electrode assembly provides maximum protection against moisture. Unit

has no moving parts, is completely automatic, and is designed for high-capacity carbonating in soda fountains, restaurants, bars, vending machines. Will deliver 100 gallons of carbonated water per hour. Car-



bonating unit may be located remote from pump-motor-relay, or is available as a completely self-contained assembly which fits into a one cu. ft. space and may be used with any existing water cooling system.

Circle No. 157 on Reader Service Card

PA 400

DAVISON'S NEW Refrigeration Desiccant

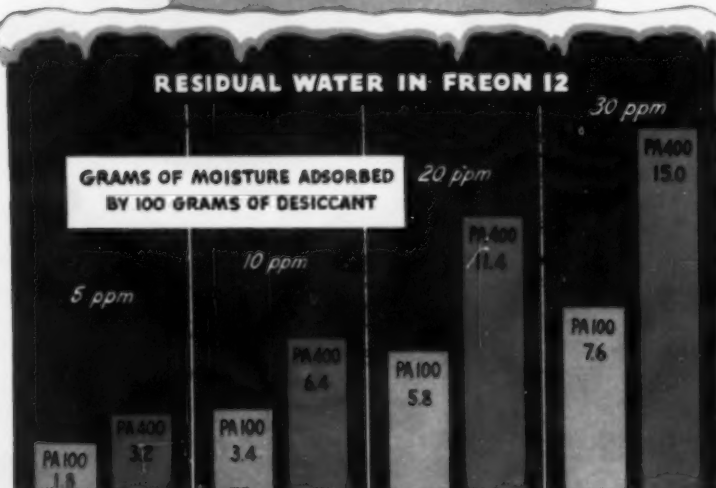
WITH GREATER MOISTURE ADSORPTION CAPACITY

Up to 98% increase in moisture capacity

The Davison Chemical Corporation has long been a leading producer of refrigeration desiccants and the manufacturer of PA 100 — the top desiccant in the field. Now, after many years of research, they have produced PA 400 — a refrigeration desiccant with a greatly increased adsorption capacity.

Tests run on the moisture adsorption capacity of PA 400 in Freon-12 in comparison with Davison's PA 100 show up to 98% increase in capacity.

Tests run on the moisture adsorption capacity of PA 400 in Freon-12 in comparison with Davison's PA 100 show up to 98% increase in capacity.



Progress Through Chemistry

DAVISON CHEMICAL COMPANY

Divisions of W. R. Grace & Co.

Baltimore 3, Maryland

Producers of: Catalysts, Inorganic Acids, Superphosphates, Triple Superphosphate, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO® Granulated Fertilizers.

*T.M. REG. APPLIED FOR

Circle No. 47 on Reader Service Card

ALLIN "LIQUID EYES" NOW UL APPROVED

Series 100 and 200 "Liquid Eye" indicators of Allin Mfg. Co., Chicago, have been tested and approved by Underwriters' Laboratories, the company reports. No basic design change was made to meet with UL approval. However, one change in material was made over a year ago. This pertains to the use of Teflon as gasket material which, it is said, removes possibility of gasket failure where extreme pressures and temperatures prevail such as in automobile air conditioning systems.

UL approved models are available in 1/4", 3/8", 1/2", and 3/4" male to male flare, male to female flare, or sweat and connections. Copper tube extensions on the sweat type permit soldering or silver-brazing into the line without taking the "Liquid Eye" apart.

AC Capacitors

Product: AC drawn oval capacitors with three types of terminals.

Manufacturer: Potter Co., North Chicago, Ill.

Features: Available for 236, 330 and 440 volts AC, 60 cycles, all sizes are made in seamless cases with tops joined to cases by a double-rolled seam. No solder is needed or used in this case design. Cases



No need for knees when
BENDING *



Save your energy! Use dead-soft DRYSEAL. You can make the most intricate bends with your fingers . . . no tools of any kind required. And its ductility and special temper make it extremely easy to flare for compression fittings without danger of splitting. To make sure you get a tube that is free of even the slightest trace of dirt or moisture we double crimp DRYSEAL on both ends, at the factory. This is the final step in manufacturing, immediately following a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube. This double crimping does not interfere with installation for it is made in such a way that it permits DRYSEAL to be passed through any opening large enough for the tube itself. Tube sizes— $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D. The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil . . . is easier to handle, light weight, economical and sturdily made to assure protection of the tube in stock and in transit.

REVERE

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Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

*** REVERE**

DRYSEAL
COPPER
REFRIGERATION
TUBE

Circle No. 48 on Reader Service Card

are filled with chlorinated diphenol resin which is non-flammable, and has high dielectric qualities, stabil-



ity and long life, even at high operating temperatures. Three terminal

types, quick-connect, eyelet, and fork are available for conventional or barrier type terminal mounting. Both footed and wrap-around mounting brackets are offered.

Circle No. 158 on Reader Service Card

Plastic Insulation

Product: "Urethane", a new synthetic foamed-in-place plastic for refrigeration insulation.

Manufacturer: Nopco Chemical Co., Harrison, N.J.

Features: The plastic has closed cell, non-communicating structure. excellent weight-to-density ratios and

poor heating-transfer qualities. It is said to resist water vapor, mold and fungus and to be free from odor. Foam is produced by mixing two liquid components at room temperature and pouring mixture into space to be filled. Foam sets in a matter of minutes and provides strong reinforcement for walls of cavity. It also dampens vibration and noise, is machinable, and can be drilled, sawed, milled and sanded.

Circle No. 159 on Reader Service Card

"Signal Eye" Thermometer

Product: Thermometer with visual signal feature that notifies operator of rise or fall in temperature reading.

Manufacturer: W. C. Dillon & Co., Inc., Van Nuys, Calif.

Features: An opaque disc is attached to dial glass near figure representing standard operating temperature and a bright red disc is



we turned ice making
upside down
to give you

Kleer Kubes®

What's the biggest problem with ice machines? Most people say "maintenance!" That's why we developed "Inverted Rain," the ideal way to make ice cubes.

"Inverted Rain" forms and harvests KLEER KUBES without mechanical assistance or flotation processes. "Inverted Rain" aerates and filters the water a hundred times an hour—the KLEER KUBE Ice Maker operates efficiently even in the hardest water, with no danger of clogging or deterioration. And because KLEER KUBES move by gravity alone, there are no ice-handling parts to break down. The KLEER KUBE Ice Maker is so simple and service-free that it will last indefinitely!

"Inverted Rain" makes the kind of cubes your customers want—clear, solid, sparkling and really pure—KLEER KUBES!



solid . . . longer lasting



pure, clear, sparkling



8 years of research went into the design of the KLEER KUBE Ice Maker. Write today for a free booklet that tells the fascinating story of "Inverted Rain".

PROLESEL, INC.

4601 Highway 7, Minneapolis 15, Minnesota

Circle No. 49 on Reader Service Card



permanently affixed to pointer. Temperature variation causes pointer to fluctuate above or below opaque circle, revealing red signal eye to operator. Opaque disc can be repositioned if new standard operating temperature is selected. Device is useful in places where height or distance make it difficult to read actual temperature. Available in 3" or 5" diameter dial sizes and in stem lengths from 2 1/2" to 72". Ranges vary from -40 F to 160 F, and from -10 C to 110 C.

Circle No. 160 on Reader Service Card

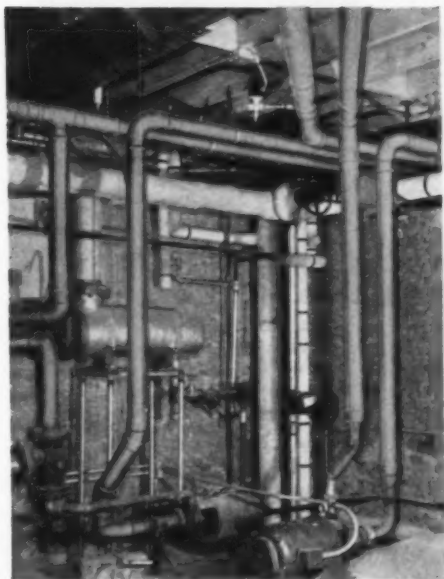
Compact Compressor

Product: High capacity air compressor that produces oil-free air.

Manufacturer: Bell & Gossett Co., Morton Grove, Ill.

Features: Specially constructed graphite or carbon piston rings are said to eliminate the need for oil separators, strainers or filters to provide oil-free air. The portable unit is useful in pressure testing new piping systems for leaks and can be

Anaconda Copper Tube and Fittings cut installing time in half, says contractor



Anaconda Copper Tube installed in the air-conditioning machine room.



Note how neatly and compactly the copper tube was installed—through small openings in the massive old masonry walls.



Frank Tvrdik, plumbing contractor, P. T. Chandler and Clark Chandler of the Chandler Co., Anaconda distributors, and John Allen, District Sales Manager, The American Brass Co., discuss details of piping at the First Avenue Building. (Left) The building as it appeared before modernization.

Skogman Construction Co., General Contractor, Architect and Owner

Copper helps turn a venerable landmark into the "Cinderella" building of Cedar Rapids

The Rock Island Building in Cedar Rapids, Iowa, a sound old landmark, has been transformed into the First Avenue Building, the most modern, comfortable, convenient office building in the city. One of the big modernization problems was the handling of refrigeration and water service. Frank Tvrdik of Midwest Plumbing & Heating Co., plumbing contractors, used Anaconda Copper Tube throughout. "Copper made the installation practical," says Frank Tvrdik. "Because the O.D. of copper tube is smaller and solder-type fittings are trim and compact, I could run lines through small openings and inside existing partitions. The 20' lengths reduced the number of fittings and the elimination of pipe-threading was a big time-saver. I saved additional time by prefabricating assemblies at the shop. Total time of installing the copper tube lines was half of what it would have been with ferrous pipe, which meant a considerable over-all saving on the job."

Find out how you can save by using Anaconda Copper Tube and Fittings. For information write The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass, Ltd., New Toronto, Ont.

6617

ANACONDA®

Copper Tubes and Fittings

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**See you at
BOOTH 304
9th EXPOSITION
Air Conditioning
& Refrigeration
Industry
Nov. 28 to Dec. 1
ATLANTIC CITY**



easily converted to operate as a vacuum pump. Spray guns furnished with the compressor outfits are of



external mix type and need not be dismantled for cleaning. Compressors are rated for continuous operation at 35, 75, and 175 lbs., and range in size from 1/4 to 3/4 hp.

Circle No. 161 on Reader Service Card

Motor Controller

Product: Model 9194 two-pole magnetic motor controller for industrial applications.

Manufacturer: Leach Corp., Los Angeles, Calif.

Features: Unit has UL approval, is small in size, and offers quiet

operation, low coil power, and screw terminal connections for simple installation. Useful for motor starting and industrial control of refrigeration and heating equipment. Motor load ratings are for 1 1/2 hp at 115 VAC and 3 hp at 230 VAC. Maximum contact load ratings are for 20 amps at either 115 or 230 VAC, single phase, and 114 amps locked rotor at 230 VAC.

Circle No. 162 on Reader Service Card

JIFFY SPRAY GUN



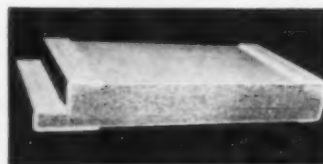
SERVICEMEN and others who use touch-up enamel will be interested in this new attachment that snaps on and off any thumb-operated spray container and makes it work like a spray gun. Designed to provide leverage for professional and industrial use, "Jiff-O-Jet" is also useful for do-it-yourself spraying jobs. Pistol-grip handle makes it easy to direct spray only where needed, while trigger-action helps to give positive control to flow of spray material. The device is distributed by Penn Square Products Co., Philadelphia, Pa.

Insulated Panels

Product: "Hasko-Struct" insulated sandwich panel construction.

Manufacturer: Haskelite Mfg. Corp., Grand Rapids, Mich.

Features: Made of fiberglass cloth polyester laminate facing sheets bonded to various densities of styrofoam, plywood and other types of core material. Unified pan-



el construction, structural strength and light weight are among the main advantages claimed. Surface finish is an integral part of face sheets and eliminates need for additional finishing treatment. Material

AUTO-LITE

TEMPERATURE RECORDING...

Newly designed, Model "1000" Auto-Lite Recorder gives permanent proof of temperature behavior. • 6" clear reading chart; various standard ranges from minus 40°F. to plus 550°F. • 3 standard types; choice of 24-hr. or 7-day cycle. • Electric or mechanical chart drive. • With capillary tubing for remote reading. Priced from \$49.50. Send for new catalog describing many styles of Auto-Lite temperature Recorders and Indicators.



Model "1000"

**THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO**

TEMPERATURE RECORDERS

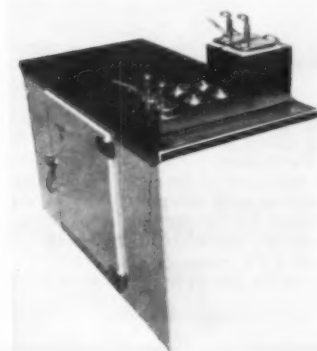
is said to resist corrosion, rot, moisture, vermin, impact damage and deformation. "Hasko-mold" shapes (strips, angles, channels and jambs) match panel face sheets in surface appearance and, like the panels, can be cut with hand or power tools.
Circle No. 163 on Reader Service Card

Ice Cream Mix Cabinets

Product: "DariLad" ice cream mix cabinets with stainless steel tops.

Manufacturer: La Crosse Cooler Co., La Crosse, Wis.

Features: Available with four, six, or eight cans, the cabinets are equipped with stainless steel tops and either of two styles of fountainettes. One fountainette model will



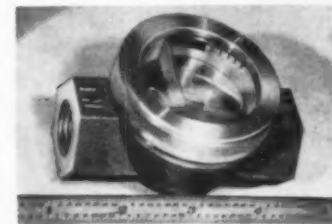
be provided with four pumps and four fruit dishes. The second unit will have two back pumps and six fruit containers. Coolers measure 35" high and fountainettes will be incorporated in the right end to assure proper air circulation within the cabinet.

Circle No. 164 on Reader Service Card

Flow Rate Meter

Product: Model F-8110 direct reading flow rate meter.

Manufacturer: Revco Corp. of America, Wallingford, Conn.



Features: Provides visual flow rate indication in circulating, lubricating and fueling systems. Unit weighs 1½ lbs., and is designed to cover a flow range of 7 to 70 GPH and to operate at temperatures of

-65 to 160 F. The simply designed unit has only one moving part and is said to be accurate to within 2 per cent of specified flow rate and to have a low pressure drop.

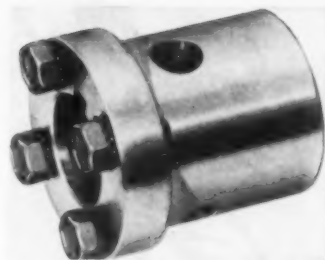
Circle No. 165 on Reader Service Card

V-Pulley Bushing

Product: Type "XBF" bushing for compressor-condenser units, to increase compressor speed.

Manufacturer: Maurey Mfg. Corp., Chicago, Ill.

Features: Unit may be used with 1, 2, and 3-groove combination



A and B pulleys on all high pressure suction and blower applications from 10 to 16" diameter. It permits installing larger V-drives of greater



MR. PIPE GETS A NEW "WESKIT!"

PROTEKTINSUL MIRACLE® PIPE COVERING FINISH

Permanent, watertight, airtight protection for insulation. Requires no finishing — no maintenance!



Turns, joints and laps spirally wound with Protektinsul Tape, brushed with Vinyl Sealer.

PROTEKTINSUL, new thermal insulation pipe and duct covering finish, is a .012" thick, prefabricated, poly-vinyl chloride outer finish that effectively protects insulation against weather, abrasion, chemicals, and mildew. Prefabricated to exact size, PROTEKTINSUL zips on and locks in place, requiring no cutting, fitting, sewing or painting in the field.

Never before a pipe and duct covering finish to give this combination of protection and beauty so important to institutions, hospitals, schools, where cleanliness is such an essential factor. Available in standard colors, or color combinations, for identification.

Method of applying Zipper to covering.

FREE: PROTEKTINSUL brochure gives you vital information on this unique development for insulated pipe and duct coverings, complete with details, properties, and specifications. Write for your free copy today.



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EHRET MAGNESIA MANUFACTURING COMPANY

Circle No. 53 on Reader Service Card



**IF YOU'RE GUNNING
for
PROFITS
LOAD UP
with the
COLDIN
LINE . . .**

**YOU CAN SELL
EVERY FOOD RETAILER
from the
SMALLEST . . .**

**to the
LARGEST . . .**

**THERE'S A CABINET AT A
PRICE HE WANTS TO PAY!**

The powerful Coldin line can be your key to new and larger volume in commercial refrigeration sales. Coldin has all the features, all the improvements, retailers look for in cabinets.

COLDIN a franchise that means Profits! We like to tell you more about it. Wire or write and we'll get together.



Your Key To
Better
Refrigeration

COLDIN CABINET CO., Inc.
2800 Webster Ave., N. Y. 58, N. Y.

Circle No. 54 on Reader Service Card

horsepower rating, and makes it easy to replace a two-belt drive with a three-belt drive.
Circle No. 166 on Reader Service Card

One-Piece Hose Clamp

Product: General purpose hose clamp that can be fixed in place with ordinary pincers.

Manufacturer: Circle Clamp Corp., New York City.

Features: Clamp is round with two or three U-shaped lugs. Device



is crimped in place, over hose or part, by squeezing parallel sides of lugs together with pincers. Prod-

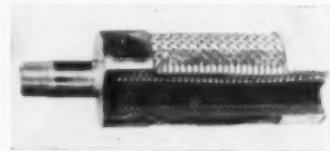
uct is said to show no slippage or loss of clamping action at hose burst pressures ranging from 12,300 to 12,800 psi. Made from various ferrous and non-ferrous metals, every clamp is marked with minimum and maximum diameters of hose or tube for which it is applicable. Available in 20 sizes ranging from 1/4" to 2 3/4" I.D.

Circle No. 167 on Reader Service Card

"Hammer" Eliminator

Product: Seamless convoluted metal hose unit for eliminating "hammer" in water pipes.

Manufacturer: Techniflex Corp., Port Jervis, N.Y.



Features: Unit takes advantage of resiliency of its materials in combination with compressibility of air pockets to reduce line pounding. Sizes are available for 1/2" and 3/4" male I.P.T. connections.

Circle No. 168 on Reader Service Card

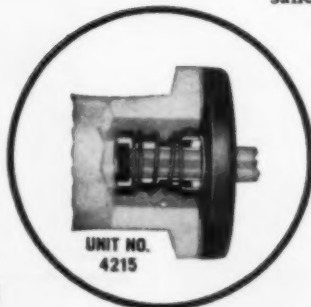
**ROTARY
SEAL**

Replacement Units

The original replacement units—performance-proved in many thousands of installations during almost a quarter century.

**EASY TO
INSTALL
ECONOMICAL
EFFICIENT IN
OPERATION**

Available in a wide range of sizes for Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors.



**AT ALL
LEADING
JOBBER**

"Seal with Certainty!"

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CHICAGO 14, ILLINOIS, U.S.A.**

CANADIAN AGENT: 2025 ADDINGTON AVE., MONTREAL 28, QUEBEC



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OCTOBER, 1955 • COMMERCIAL REFRIGERATION



MADE *for each other...*

to do a better job for you!

**CHASE® Type L Copper Tube and
Wrought Solder-Joint Fittings**

Accuracy is the keynote in Chase's manufacturing process for Type L copper tube and wrought solder-joint fittings for refrigeration and air conditioning. Inside and outside diameters are "right on the button." Metal of tube and fittings is identical. They fit each other perfectly—expand and contract *as one unit!* They're smoother, flawless! Straight lengths of tube can be obtained capped for cleanliness.

Your Chase wholesaler stocks coils and straight lengths of Type L copper tube in a wide range of sizes, and individually packaged coils of Chase extra-soft copper refrigeration tube. He also has Chase wrought solder-joint fittings in many styles and sizes.



Chase 

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass & Copper (Established 1889)

Albany†	Cincinnati	Houston	Minneapolis	Providence
Atlanta	Cleveland	Indianapolis	Newark	Rochester†
Baltimore	Dallas	Kansas City, Mo.	New Orleans	St. Louis
Boston	Denver	Los Angeles	New York	San Francisco
Charlotte†	Detroit	Long Beach†	Philadelphia	Seattle
Chicago	Grand Rapids†	Milwaukee	Pittsburgh	Waterbury

QUALIFY SALESMEN . . .

Continued from page 37

really needs still more education in the art of salesmanship, and especially more knowledge about store operation—the business of the customers whom he intends later to sell.”

Thus, returning to the company's headquarters, the trainee welcomes the next stage of the program, rather than being apathetic toward it. This stage consists of his participation in an intensive short-course in Applied Store Engineering.

The short course includes lectures on about eight or 10 major topics of store engineering, and guided visits to a number of stores. The course lasts three or four full days, and is attended by salesmen representing the company's dealers as well as by its own trainees.

A typical course begins with introductory remarks by Maintain at a dinner on a Thursday evening. Afterward the entire group tours a store so that either Maintain or

one of his best salesmen can point out typical good or bad points which will be more fully considered in later classes.

On the following day, the first class lecture may be delivered by



Maintain on the subject: “Characteristics of Stores That Make the Most Money.” After a coffee break, his next subject may be: “Objectives of Store Planning and Modernization.” Then another of the company's experts in measuring and layouts may discuss this subject in considerable detail.

In the afternoon, Maintain may

lecture on four other topics. In a typical program these have included: “Surveying the Store; the Scientific Way to Get the Facts,” “A Program for Store Planning and Modernization,” “Components of Modern Stores,” and “Display Principles.” Another staff member may discuss “Making Big Stores Out of Little Ones.”

By Saturday morning, Maintain's lectures may include: “Appearance and Atmosphere,” “Canopy Lighting,” and “Layout for Maximum Sales at Lowest Cost,” while another staff member will go into further details of drawing the plans for various kinds of installations.

That afternoon, Maintain may discuss “Display Principles,” and “Equipment and Demonstration.” Typical subjects of ranking salesmen may be: “Merchandise Location in a Complete Store,” and “Low Cost Installing.”

On Sunday morning, typical subjects by Maintain have included: “Revolution in Retailing,” and a second part of “Layout for Maximum Sales at Lowest Cost.” His

Pinnacle WALL TYPE BEVERAGE CASE

has won nationwide preference for its outstanding service record, quality construction, modern beauty!



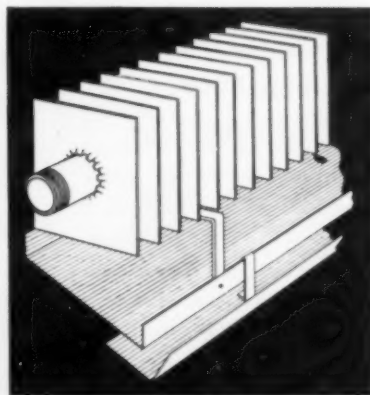
Here is a Beverage Case that literally has “everything” . . . beauty, saving of space . . . economical operation . . . best of materials used in its construction . . . time-tested dependability . . . most reasonably priced! Among the many features to be found in the Pinnacle Wall Type Beverage Case are: Better insulated doors and jambs that practically eliminate condensation and chance of short circuiting . . . Frame of No. 1 kiln dried Douglas Fir, screwed throughout; etc. Model WB526 (pictured here) is 6-ft. wide, 78” high and 24” deep with four sliding doors. It has 50 sq. ft. of shelf area and will hold 48 cases of 12-oz. bottles. Also available in 8 and 10 foot models in either life-time Porcelain or Stainless Steel. 8 and 10 foot models have 8 sliding doors and will hold 67 and 85 cases respectively.

BIG PROFITS FOR YOU, MR. DEALER!

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature!

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

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FRICK Square- finned pipe

Is ideal for cold storages, freezers, food processing and meat packing plants, etc. Manufactured from 2” dia. F.W. steel pipe and 7” square 14-gauge fins, Frick finned pipe gives maximum heat transfer per dollar invested. Each fin is bonded to the pipe under tons of hydraulic pressure. All assemblies are hot-dip galvanized.

These new Frick finned coils require only one-quarter of the space needed for bare pipe having the same surface. This new finned pipe is available in lengths of 5', 6'8", 10' and 20'—and with fin spacings of 1" and 1½"—to fit every application.

See your nearest Frick Branch or Distributor for complete details, or write for Bulletin 158.



DEPENDABLE REFRIGERATION SINCE 1897
Frick Co.
WAYNESBORO, PENNA. U.S.A.

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afternoon subjects have included: "How a Distributor Should Set Up His Store Planning Department," "Pitfalls of Modernization," and "Sales Techniques—Retaining Control of the Job."

The final class on Monday morning usually finds the same speaker discussing "Management Policies and Procedures," "Wholesaler Policy," and "Review of the Course."

At the conclusion of the sessions, participants are presented certificates of their sales training. Also, at this time it is accepted that the new salesman is adequately prepared to sell the company's products successfully.

Such courses are conducted only about three times a year, but their timing and that of the work-starts by new salesmen are usually adjusted so that a trainee will be able to attend within a few weeks after he has been added to the payroll.

The final item of sales training in this company consists of a Saturday morning conference held once a month at which time individual salesmen are requested to discuss specific problems they have encountered and solved, and the methods that they used for solution. Others attending are invited to ask questions and make suggestions. "This encourages the salesmen to learn much from each other," remarks the company head.

Maintain personally has only one criticism of the training system he uses. "Certain companies with no adequate training of their own have stolen too many of our trained salesmen," he protests. "It would be far better for those firms," he says, "if they would establish courses aimed more directly at their own specific requirements."

PENN CONTROLORAMA SCHEDULES FALL TOUR

Penn Controls' "Controlorama" show, which toured the south and east central states last spring, will again "hit the road" for its fall, 1955 showing. Controlorama features "live" demonstrator operating systems showing residential heating, air conditioning and refrigeration systems in simulated operation.

In addition, wide screen color

projection will be used to supplement animated charts and giant operating controls. Both the heating and cooling shows are combined for presentation at one time.

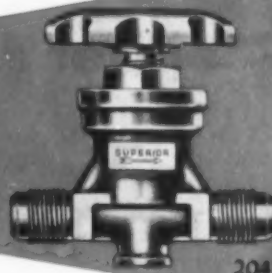
Show begins at 5:30 p.m., local time, and is sponsored in each city by leading wholesalers who will issue special invitations to all trade people in the area.

The Controlorama schedule includes the following cities: Huntington, W.Va., Sept. 19; Charleston, W.Va., Sept. 20; Roanoke,

Va., Sept. 22; Washington, D.C., Sept. 26; Richmond, Va., Sept. 28; Norfolk, Va., Sept. 29; Greensboro, N.C., Oct. 3; Raleigh, N.C., Oct. 5; Charlotte, N.C., Oct. 7; Columbia, S.C., Oct. 10; Charleston, S.C., Oct. 12; Savannah, Ga., Oct. 14; Jacksonville, Fla., Oct. 17; Orlando, Fla., Oct. 19; Miami, Fla., Oct. 21; Tampa, Fla., Oct. 24; Columbus, Ga., Oct. 26; Atlanta, Ga., Oct. 28; Birmingham, Ala., Oct. 31; Nashville, Tenn., Nov. 2.

Two Money-Savers from the Superior family of fine valves

Line Valves
2 way, 3 way, Angle
in flare and sweat connections



Rugged, job-engineered globe and line valves by Superior are an asset to any refrigeration system. You start to save money from the very day you specify Superior because you get quality without a premium price tag. And faithful, dependable service from each valve adds to the savings for years to come. *Be specific, ask your wholesaler for Superior Valves!*

Globe Valves
sizes— $\frac{1}{8}$ " thru $4\frac{1}{2}$ "
also angle and globe check



Superior valve and fittings co.

Pittsburgh 26, Pa.





FIRST IN THE FIELD ON EVERY COUNT!

MUELLER BRASS CO.

Streamline

all-copper adapters

FIRST developed by the originator of the solder type fitting

FIRST in sales with a record of over 5 million sold in just one year!

FIRST complete line in both O.D. and fitting ends

In just one year this new Mueller Brass Co. all-copper adapter has set a smashing record on every count . . . engineering, sales and performance. They are available as copper-to-male and fitting-to-male styles in sizes from $\frac{1}{4}$ " to $2\frac{3}{8}$ ". And, the dependability of this fine STREAMLINE adapter is proved by the fact that over 5 million have been put in service in the short space of one year. Many excellent engineering features have been incorporated in these adapters which are produced from heavy wall copper tube. Threads are rolled rather than machined, actually improving the grain structure of the metal and affording greater strength. The pure wrought copper is superior for soldering because heat is transmitted evenly and quickly. The smooth bore and the precision machined stops permit maximum flow. You'll like these new adapters, and the many advantages they offer . . . and you know these "thoroughbreds" will live up to every claim because they're made by the originators of the solder-type fitting. If it's Streamline, it's got to be good.



161-R



MUELLER BRASS CO. PORT HURON 10, MICHIGAN

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OCTOBER, 1955 • COMMERCIAL REFRIGERATION

SELF-SERVICE LAYOUTS . . .

Continued from page 39

the partition between the cutting and packaging operations. By applying the principles of good layout, most of the deficiencies of the typical operation were overcome.

The pricing operation was located between the holding cooler and the display cases. This was done because of the permanent location of the holding cooler, and because studies of this market indicated that about 25% of the packages ready for display were placed in the holding cooler before they were placed in the display cases. The location of the power saw in this layout is an illustration of the kind of compromise that must be made sometimes.

Employees Benefit

By minimizing many of the disadvantages of the original layout with improved methods, materials, equipment and layout, it was possible to effect a savings of two workers in this test store. Employees were not required to work any harder to save this time; many voiced the opinion that their work was much easier.

Another example of a typical unimproved meat market is shown in Fig. 3, this one in a different section of the country. In this market the location of the cutting operation and power saw presented a particular problem. The power saw (A) was at a considerable distance from the cooler alongside a small holding table (B). Meat cut on the power saw had to be carried to the cutting tables (C) where scrapping and an additional trim were performed. The product then had to be carried to the boarding and traying operation (D) where this function was performed separately.

Difficulties Described

After the product was boarded and trayed, an extra handling, it was placed on the end of a single conveyor (E). Tables were placed at right angles to the conveyor. Wrapped and unwrapped meat on the same conveyor caused the same difficulties as in the first depart-

ment described earlier. Meat to be ground on special order from the customer had to be carried inside the cooler and ground on a large mill (F), as no small mill was available. This created a traffic problem as personnel went in and out of the cooler. There was no accumulation area for storage of the price-marked items at the pricing operation (G) and each pan was carried to the display operation individually.

Another version of this type of layout was the "bench" type. No conveyor was utilized and the product was carried by hand through all operations of the meat department. The location of the power saw, cutting tables and the boarding or traying operation, in this layout, were the same as in Fig. 3.

The wrapping and pricing operations were located in the same area along the cooler wall. Wrap-



pers worked along the bench but did not work in a definite area. Pans of product had to be carried to the wrapping operators and held on the benches. After wrapping, the pans of product were stored on the bench in the same manner for the pricing operation. All pans progressed through the packaging operation by hand.

One of the biggest disadvantages of this type of packaging operation is the lack of a fixed work place arrangement with all materials, tools and equipment close at hand.

An improved layout (Fig. 4) was installed in both of these types of markets without structural

changes to the store. Limited space made it necessary to locate one of the cutting tables a short distance away from the conveyor. Adoption of improved methods, equipment, materials and layout effected a saving of three workers with the same volume of sales.

An effective method to follow in developing layout improvements is a step-list analysis of the flow of products through the market.

Careful study of the following classes of products in a meat department should give a good evaluation of layout: (1) red meat received on a rail, blocked and cut on a power saw; (2) by-products, such as bones and fat, and trimmings used as stew beef or ground beef; (3) pork products; (4) poultry and fish; (5) luncheon meats and cheese packaged in the store; (6) previously packaged items, such as bacon, sausage, etc., requiring only pricing.

In addition, special consideration should be given to (1) handling of rewrap packages, (2) handling special orders for customers, (3) movement of workers from job to job, (4) disposal of trash and waste, and (5) movement and storage of supplies and materials.

NEW "VIKING" FIRM TO MAKE CASE LINE

Viking Cooler Co., 126 Sidney St., St. Louis 4, has announced the purchase of the "Viking" trade mark, good will, patents, specifications, patterns and prints to manufacture commercial refrigeration products formerly made by Viking Refrigerators, Inc., of Kansas City.

Charles N. Grosblatt, president of Viking Cooler Co., reports that four commercial models formerly produced by Viking Refrigerators are now in production. These include the "Crispy-Cold" line of fruit and vegetable cases and a line of dairy cases. Beverage coolers, reach-in refrigerators and frozen food cases will be available soon, Grosblatt said.

Viking Refrigerators, Inc., established in 1904, decided to discontinue its manufacturing operations in December, 1953. Welch Jensen, president of the former manufacturer, will be associated with Viking Cooler Co. as vice president.

YEAR AROUND TOWERS . . .

Continued from page 43

running from a point near the top of the tank to the drain. The tank also has to be provided with a make-up water line. Water level in the tank is controlled by a float valve. Because it is necessary to clean the storage tank from time to time, just as it is necessary to clean the cooling tower basin, a drain is provided for this purpose.

running from the bottom of the tank and tying into the overflow line.

For emergency purposes, in case of pump or tower failure, two of the most critical compressors in each installation are equipped with controls which automatically allow city water to run into the system any time that the recirculating circuit ceases to function properly. These controls are simply high pressure controls that open up the solenoids when pressure

builds up due to a lack of water. To provide maximum protection, the two compressors so controlled should be ones that run at different operating temperatures, such as a frozen food case (or walk-in cooler) and a meat case.

When new food market jobs of this type are planned, one cooling tower sized for the entire cooling load usually is installed, along with two separate pumps, one for the air conditioning and one for the refrigeration equipment. In cases where old markets are being remodeled, however, the existing tower generally is sized only to handle the air conditioning equipment. If maximum savings in water costs are to be effected on these installations, it is then necessary to install a separate tower to handle the refrigeration load.

In laying out market installations of this kind, United's sales engineers make a practice of preparing rough schematic sketches of the water piping, such as the one accompanying this article. They have found that these are helpful not only in determining proper pipe and pump sizes, but also in giving the installation men a better "picture" of the job.

**MUELLER SPLITS COOLING,
HEATING ENGINEERING**

Mueller Climatrol Div., Worthington Corp., has announced the designation of separate heating and cooling sections in the firm's engineering department, which are expected to aid the expansion and future growth of the firm's residential and commercial sales.

Appointed to head up the newly designated engineering sections are N. E. Hill, manager of heating engineering, and Richard Signorelli, manager of cooling engineering.

HIGHSIDE CHEMICALS NOW STEWART UNIT

Highside Chemicals Co. has recently become a corporation and is now a unit of Stewart Industries, Inc. The address, management and ownership of the company, however, remains unchanged. Laurence V. Gardner, general manager for the past 17 years, will continue in that capacity as executive vice president of Stewart Industries.



**THE WORLD'S LEADING REFRIGERANT
IN THE INDUSTRY'S BEST PACKAGE**

You score two ways when you use duPont's "Freon" in Eston's convenient and economical CHARG-A-CANS. "Freon," the versatile and low cost refrigerant, was originally developed by duPont more than 24 years ago. Since that time duPont's continued research has developed "Freon" into the safe and efficient refrigerant chemical it is today.

Packaged and distributed by Eston, "Freon" refrigerants in CHARG-A-CANS are setting the pace for the entire industry with controlled purity, accurate charging, and time-saving disposable containers. A strong, dependable source of supply for the world's finest refrigerants — in the industry's best package.



ESTON CHEMICALS DIVISION

American Potash & Chemical Corporation

Offices: • 3100 East 26th Street, Los Angeles 23, California
• 99 Park Avenue, New York 16, New York

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"FREON" refrigerants

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*This type of circulation is called
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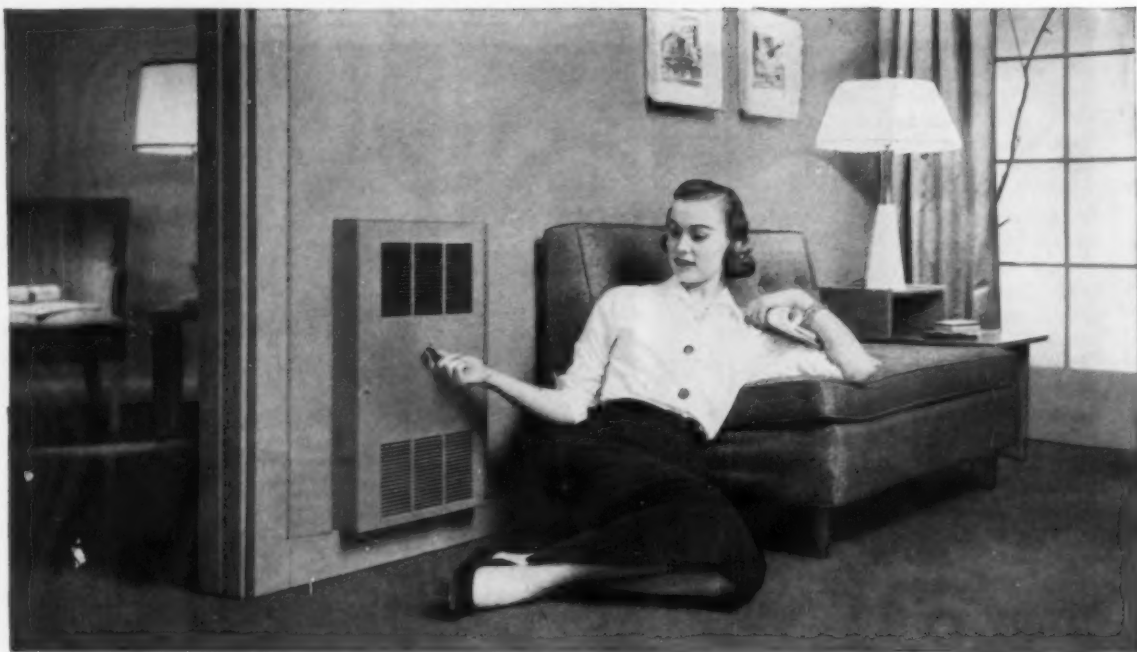
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Commercial Refrigeration & Air Conditioning

1240 ONTARIO STREET

CLEVELAND 13, OHIO



Chicago apartment building installs



dual-vectors to "beat the heat"



Easy to install . . . The UNARCO dual-vector is easily fitted between studding. The unit contains heating and cooling coil, blowers, motor and controls—and is available in Model DV-60 (shown) and Model DV-120 (of larger dimensions and capacities).



The people who live in this apartment will enjoy year around UNARCO weather conditioning. In winter, clean, even, hot water heating; and in summer, cool, filtered and dehumidified air—ALL FROM ONE SYSTEM.

That's because new UNARCO dual-vectors, each with its own control knob, allow you to select the exact temperature desired for each individual room. The UNARCO "hydro-pac" water chiller supplies the cooled water and your boiler provides heated water for the system.

Truly revolutionary, this new development offers the luxury and comfort of weather tailored to the needs of each member of the family. Most surprising! This combination heating and cooling is available at little more than the cost of a hot water heating system alone.

Builders! Contractors! Architects! The UNARCO dual-vector offers you a fine opportunity to broaden your markets by offering the finest in heating and cooling facilities available today. Write NOW for detailed information regarding cost, design and operational data! Address: Dept. 101-F, HEATING & COOLING DIVISION;

UNION ASBESTOS & RUBBER COMPANY
332 S. Michigan Avenue Chicago 4, Illinois



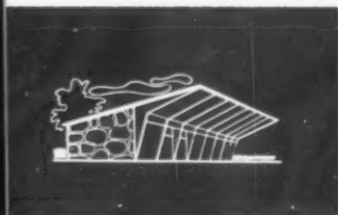
dual-vectors

**provide year 'round
weather conditioning**

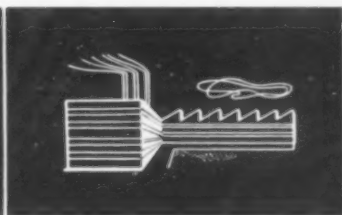
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AIR CONDITIONING SECTION

COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



COMMERCIAL



INDUSTRIAL



INSTITUTIONAL



RESIDENTIAL

TABLE OF CONTENTS

You Can Use Central Station Water Chilling	83
Selling Auto Air Conditioners	84
"Star" Customers Stimulate Sales	85
How to Sell The Replacement Market	86
Collecting Past-Due Accounts	90
Solution: Room Coolers	91
Useful Air Conditioning Literature	92
What's New In Air Conditioning Equipment	95

You Are In The Business . . .

A recent survey made for COMMERCIAL REFRIGERATION AND AIR CONDITIONING magazine, established the fact that:

74.3% of the respondents indicated they were "in the air conditioning business".

Of those in the air conditioning business:

86.9% sell Air Conditioning Equipment of some type

78.7% sell Window or Room Air Conditioners

84.6% sell Commercial Packaged Air Conditioners

74.8% sell Central-Plant Air Conditioning Systems

77.4% sell Year-Round Residential Air Conditioners

88.7% service Air Conditioning Equipment

YES !! THE READERS OF COMMERCIAL REFRIGERATION AND AIR CONDITIONING MAGAZINE ARE DEFINITELY IN THE AIR CONDITIONING BUSINESS !!

*Is the problem
air conditioning
individual motel rooms?*



ROOM UNITS like this one condition each room in the Mid-City Motel without recirculating air through other rooms.

You Can Use Central Station Water Chilling

NOW that codes and ordinances governing public lodging places in many municipalities expressly forbid the recirculation of air from any one guest room throughout any other guest rooms, more and more of the new and modern motels which are springing up all over the country are turning to central station wa-

ter chilling and heating units to provide the air conditioned comfort which their patrons demand.

Such systems, coupled with individually controlled coil and blower units in each room, can provide year-round conditioning tailored to each guest's taste, without coming in conflict with any legal restrictions regarding the re-

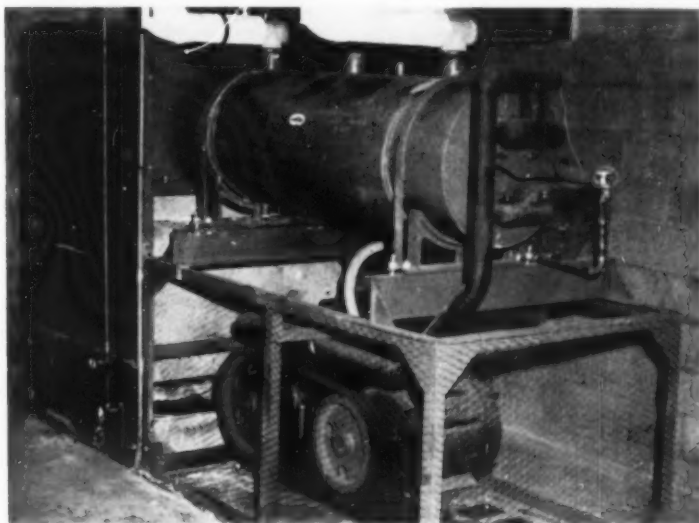
circulation of air throughout the entire structure.

Typical of such air conditioning applications is that in the Mid-City Motel at Columbus, Ohio. Here a 25-ton Usairco packaged water chiller was installed in the machinery room located in the motel's basement. This unit pumps chilled water to the 300-cfm "Modu-aire" room units located in each of the motel's 40 12x24' suites and in the office area.

Basically designed as an air handling unit, this 25-ton central station package is composed of three separate sections—compressor and motor unit, coil and blower assembly, and evaporative condenser. It is readily converted to a "wet" system through substitution of a standard shell-and-tube water chiller for the coil and blower assembly, leaving the other two sections intact.

In the Mid-City Motel, heat was provided through installation of a 432,000 Btu output boiler tied into the header system of the cooling package.

Depending upon outdoor weather conditions, chilled or heated water is pumped from this central system to the individual room units, each of which incorporates



SUBSTITUTING a standard shell-and-tube water chiller for the air handling section of this 25-ton "packaged" central station air conditioner readily converted it for use with a "wet" system. This unit pumps chilled water to the individual conditioning units in the motel's 40 suites.

Continued on page 104



HEADQUARTERS like those of a new car dealer are used by this Texas firm which specializes in . . .

SELLING AUTO AIR CONDITIONERS

CONCENTRATING its sales program almost exclusively upon top-notch prospects—the traveling salesmen who spend the greater part of the business day in their automobiles—has paid off in record sales of 270 automobile air conditioners in a single year for Automobile Air Conditioning Co. of Fort Worth, Tex.

This enterprising firm, headed by George C. Huff, is only three years old, but has expanded so rapidly that it already has been forced to remodel and enlarge its showroom and service department three times. With a layout closely resembling that of an automobile dealership, Huff's organization has facilities for working on as many as 10 cars at once, in addition to the business office and a handsome showroom in which the automobile air conditioners are attractively displayed.

Huff charges approximately \$70 for installation on the popular line of automotive cooling units which make up his stock. Total installed price for most makes of automobiles amounts to \$368. For this, the dealer promises his customers that the air conditioning unit will

reduce the car's interior temperature by from 25 to 30 degrees.

"There's a definite future in this business," Huff confidently predicts, "so long as dealers don't make the mistake of exaggerating or misrepresenting the capacity of the cooling unit. Because we feel so strongly about this, we ourselves are overly conservative, if anything, in making promises concerning the performance of the equipment we install. The result has been a complete absence of complaints from our customers."

Time Payments Offered

The trunk-installed air conditioning system which Huff handles is rated at 3-hp. With the extremely high heat load which results from driving under the broiling Texas sun in temperatures ranging around 100 F, however, the actual output of these units is around 2 tons. Even so, Huff explains, it is possible to maintain that 25 to 30 degree temperature reduction which is more than adequate for the usual customer.

Although offering a time payment program and even a lay-

away plan, this Fort Worth dealer has found it possible to do a sizeable "cash on the barrelhead" business in automobile air conditioning simply by directing the firm's sales efforts toward the men who need the product most.

"There are thousands of traveling salesmen in central Texas," Huff points out, "who really need cool comfort when driving from town to town. Our principle sales asset is the assurance that with our equipment installed in their cars these salesmen will reach their destination feeling fresher, less fatigued, and more ready to do a day's work or relax and enjoy the evening, whichever the circumstances indicate. As a convincer, we always keep on hand a thick file of testimonial letters to this effect which we have received from many of our satisfied customers."

Contacting traveling salesmen hasn't been as difficult as might be expected, according to Huff. First, he subscribes to a list of new car purchasers which is published daily in the Fort Worth area, and tracks down each owner to determine whether or not his car is used at all for business trips. Also, he

has contacted the secretaries of various salesmen's organizations in order to obtain lists of their members. In the case of companies with large sales organizations, Huff usually takes the personnel or sales manager out for a spin in a completely air conditioned dem-

JUST because this particular dealer success story springs from the Lone Star State, don't pooh-pooh it as just another Texas tall tale. There seems little doubt about it — automobile air conditioning is really on its way.

Automobile manufacturers generally have abandoned much of their original skepticism in the face of quickening consumer interest and are now viewing the future of car cooling through rose colored glasses. Most optimistic of all is G. T. Etheridge, automotive air conditioning manager for American Motors, who openly predicts that in 1959 a million cars will be sold with factory-installed air conditioning units.

In any event, automobile air conditioning definitely has come down out of the mink coat and Cadillac class. Virtually every car maker is offering some sort of cooling system as a plus-cost accessory on current models. Surest sign that this newest motoring luxury is moving into the mass market is the news that all Montgomery Ward retail stores in the South now are selling auto air conditioning units under the Ward name.

Most significant of all, from the standpoint of the air conditioning dealer or service organization, is the growth of the half dozen or so independent manufacturers of automotive air conditioners, at least two of which are claiming production of 10,000 or more units during 1955, for these firms must of necessity turn to non-automotive channels for the merchandising, installation, and maintenance of their products.

onstrator car. He then finds these executives usually are quite willing to provide him with the names of their sales personnel.

Last year alone, Huff's firm completed some 500 follow-ups of this nature, Huff making most of them personally, and from this number of calls about 270 instal-

Continued on page 100



"Star" Customers Stimulate Sales

WHENEVER any of the four air conditioning equipment salesmen of Britt & Daugherty, Orlando, Fla., dealer, sells a piece of equipment to a building contractor, a "sold" sign is immediately placed on a similar unit on the company's sales floor. The 6 x 9" sign gives the purchaser's name and a gold star, representing that sale, is pasted along the margin. There are as many gold stars appearing on the sign as pieces of air conditioning equipment which the customer has bought during that month.

Sales manager E. H. (Ned) Vick hit upon the sign idea a season or two back, when he found that there was a steady stream of interested visitors, including both contractors and homeowners, in the Britt & Daugherty showroom. He felt that prominent display of the names of the firm's better builder-customers in the area would inspire confidence and attract more attention.

When a builder sees that one of his competitors has already bought several central package air conditioning units in a single month, Vick has found, he is likely to investigate the profit possibilities in this type of equipment more closely. Frequently a new customer will ask what the stars on the signs mean and, invariably, he is quite impressed to find that some customers have purchased as many as a dozen 5 to 10 ton cooling units.

Britt & Daugherty salesmen (who operate on a straight commission basis) find the plan a constant stimulation, and attempts by each man to enlarge the number of stars showing on his customers' cards has increased the number of units sold.

The company makes use of a combination sales-engineering approach to every air conditioning problem. A qualified mechanical engineer is teamed with the salesman, one to handle the initial prospect contact and the selling job, and the other to take on the engineering and technical aspects. This 2-man team system has proved to be exceedingly profitable and capable of eliminating many of the mistakes and misunderstandings which otherwise might occur.

EVERY AIR CONDITIONING SALESMAN SHOULD KNOW

HOW TO SELL *The Replacement Market*

- Protection of an important investment in air conditioning is of growing concern to many executives. To cash in on this fact, the business-minded air conditioning dealer or contractor must combine sound economics with technical know-how.

THE potential demand for new air conditioning is expanding so rapidly that many dealers and contractors, and their salesmen, are apt to overlook a replacement market which is already important and must inevitably become more so. Good equipment will give trouble-free service for a long time, but most systems which have been in operation for a few years are due for some measure of improvement. Even equipment which appears in good condition may be profitably replaced with other of improved design. Knowing when this should be done and how to convince the owner requires careful appraisal of all costs of ownership and operation.

Air conditioning equipment is usually replaced for one or more of the following reasons: (1) to achieve maximum dependability; (2) to reduce costs, particularly those of maintenance and operation; (3) to improve performance to an extent which justifies additional investment; (4) to take advantage of improved design, particularly in the fields of safety, quiet operation, space saving and automation; and (5) to handle increased load.

This last requirement is usually handled by additional equipment rather than replacement but it is noteworthy that increased patronage following installation of air conditioning, particularly in the restaurant and entertainment fields, almost always overloads even liberally designed equipment. It is surprising how a restaurant operator can crowd seats and serving equipment into a place as demand grows, even to the extent of removing package equipment to the basement or in-

stalling remote conditioners above the floor area or in otherwise unusable space.

Since the commercial owner is interested in overall profit, the contractor who shows a knowledge of cost and how any change will affect it, will receive a sympathetic hearing. Costs of owning and using air conditioning equipment involve both fixed and operating expenditures. Fixed costs include depreciation or amortization, interest on investment, taxes, insurance, and rental value of space occupied. Operating costs include the expense of power, water, steam, fuel, etc., plus maintenance of the equipment, and wages or salaries paid to operating personnel.

Amortization and appraisal estimates will vary, depending upon the yardstick used in making the estimate. A common method is to divide total installed cost by estimated life expectancy in years and write off depreciation yearly. Value at any time will be the yearly depreciation rate times the number of years life expectancy remaining. It has been the writer's experience, however, to find much equipment running efficiently for some years after the entire cost has been written off as depreciation.

Good maintenance may keep equipment running indefinitely. Major repairs, however, because they extend the useful life of equipment, should be considered capital investment. In such cases, the decision as to whether this investment should be made on old or new equipment is a matter requiring careful judgment. When cost of a repair approaches the actual value of old equipment, replacement should be seriously con-

ANALYZING comparative costs of existing air conditioning systems and contrasting these with what a new system would cost can prove a convincing way of selling air conditioning for replacement use. This form is one suggested way in which this comparison can be effectively presented to a prospect.

**COMPARISON OF COSTS
OF PRESENT AND PROPOSED SYSTEMS**

	PRESENT SYSTEM	NEW SYSTEM
FIXED COSTS		
Amortization (value ÷ years expectancy)		
Interest (50% of rate X cost = prox.)		
Taxes		
Insurance		
Space rental or value		
TOTAL FIXED COSTS		
OPERATING COSTS		
Power		
Water		
Maintenance		
Operators' wages		
TOTAL OPERATING COSTS		
ESTIMATED LOSSES DUE TO DOWN TIME		
TOTAL FIXED COSTS		
TOTAL OPERATING COSTS		
TOTAL ESTIMATED COSTS DUE TO DOWN TIME		
TOTAL ALL COSTS		

sidered. Approximate life expectancy of items in an air conditioning system, based on nominal maintenance, is given in the accompanying table.

Maintenance cost naturally increases with age and use. Expense records for each major item will be helpful in determining when it should be replaced. Service records should be so kept, by the contractor, that this information is readily available.

Replacement may be indicated by a desire on the part of an owner to budget his costs. Service warranty and guaranteed service contracts are major incentives to the purchase of new equipment. Obviously, full maintenance contracts are not practical for old equipment unless the contractor knows it has been maintained systematically. Comparative costs of full maintenance contracts for old and new equipment will often lead to the purchase of new. With full maintenance, the amortization period can be extended beyond a normal life expectancy, resulting in lower amortization cost per year.

Capital invested in air conditioning is properly charged an interest rate depending upon the capital structure of the owner. It may be interest charged for borrowed money or interest value of capital diverted from other investment. It should be pointed out to the purchaser that money spent for new equipment is

APPROXIMATE LIFE EXPECTANCY OF AIR CONDITIONING EQUIPMENT

Component	Expectancy in years
Refrigeration compressors and condensing units	15
Motors	15
Evaporative condensers	10
Cooling towers	10
Cooling coils and remote air conditioners	10
Control systems	10
Pumps	15
Fans	10
Ducts and grilles	20
Iron piping	10
Copper piping	20

NOTE: For income tax purposes, it is common practice to write off a complete system over a 10-year period.

***"Even equipment which appears to be in good condition
may be profitably replaced with new units of improved design."***

an investment and not a direct expense. Also, the prevailing interest rate should not be charged over the entire period of amortization on the entire initial investment. Over a 15 year period, it will actually amount to about half the yearly rate on the entire cost.

Real estate, personal property and income taxes affect air conditioning costs to an extent determined by rate structure and methods of appraisal. These are so variable that each case has to be considered individually. In general, replacement of equipment will not alter property taxes unless a larger system is installed.

Income and excess profits taxes may directly influence decisions regarding replacement or repair. Repairs are usually written off as expense for the year when made, being deductible in full from taxable income. New equipment may have to be written off during the amortization period determined by life expectancy. Major overhauls, requiring considerable expenditure, may also have to be written off over the extended life which the repair gives to the equipment, if the deduction is sufficiently large to be challenged by tax authorities.

Replacement may, in some instances, be more advantageous from a tax standpoint than repair. Such would be the case when obsolescence or changed conditions renders equipment unsuitable before the normal amortizing period has expired. The entire difference between initial cost and amount allowed in trade, less whatever has been written off previously, is deductible at the time the change is made. In order to claim such deductions, air conditioning equipment should be carried on the user's books as a separate item.

Insurance Rates Are Affected

Rates for several kinds of insurance are affected by types of air conditioning equipment installed. Systems with large pressure vessels or extensive pressure piping will be under close scrutiny by insurance inspectors, who are empowered to order replacement when they deem necessary. It is often on such recommendations from insurance companies, that systems are altered to reduce hazards and insurance rates.

A survey of the entire system in almost any building, with an eye to reducing insurable hazards and consequent costs, may prove very profitable. In addition to pressure vessels and piping, the following hazards should be minimized:

(1) Possibility of fires in duct systems; (2) hazards due to concentrated weight; (3) hazards due to vibrating machinery; (4) flammable construction in cooling towers; (5) property damage due to leaks from or

condensate on chilled water lines; (6) transfer of objectionable fumes through the duct system; (7) fire and shock hazards in the electrical system.

Space occupied by equipment is properly charged as air conditioning cost. In a leased structure, the proper figure is relatively easy to estimate from the amount and kind of space used. In an occupant owned building, it will be the value of the space if it could be converted to other use. In any event, any alteration which will conserve space will be of interest to most users.

The ratio of power consumed to cooling effect produced, under given conditions, is fairly constant for good equipment. A proper balance between power and water consumption, to get lowest combined cost, may effect substantial savings. Installation of air cooled or evaporative condensers or cooling towers should be recommended when cost can be amortized from assured savings within a few years.

Operating Costs Can Be Cut

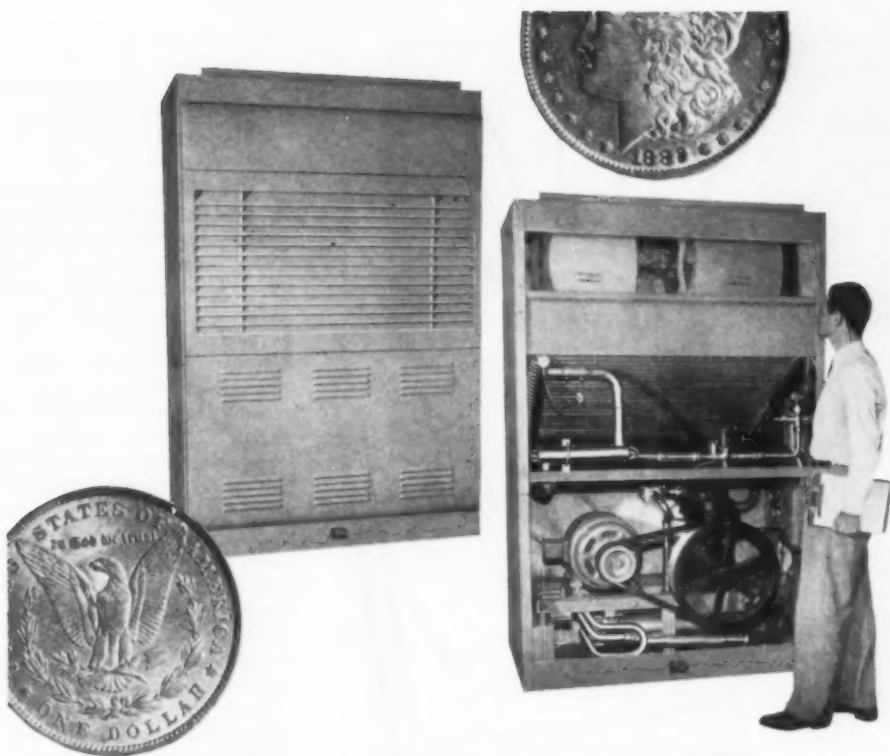
When power or water consumption exceeds normal for operating conditions, due to inefficient equipment, replacement or overhaul is definitely indicated. Discussion of various factors affecting power and water consumption would alone require more space than is allotted to this article, but comparison of metered or measured consumption with manufacturers' published performance data will tell if a system is efficient.

Newly designed absorption and gas powered mechanical equipment is making a bid for increased recognition in the competitive market. Comparative costs of power, water and fuel will determine relative economy of such systems. Estimated totals of all fixed and operating costs should be compared in determining which type of system to install.

A most important incentive to modernization is reduction or elimination of operating personnel. Operating costs are kept high, in many cities, by codes requiring licensed operators for systems of certain types. All interested groups should, of course, press for modernization of antiquated codes and thus encourage installation of equipment with adequate safety features to make possible fully automatic operation with minimum attention.

Regardless of codes, certain types of equipment will require operators and others will not. What will be required to automatize a particular system will depend upon local conditions and codes. A trend to package units is attributable largely to their freedom from undue code restrictions regarding operation.

Continued on page 114



This 20-Ton Baby Puts You in The Big Money!

Don't let the big ones get away! No installation is too large for you to handle with this Typhoon super unit — office buildings, factories, department stores. You can land a 40 or 60-ton contract in about the same time it takes you to sell a small retail store. And remember, the big boys don't wait until May 30th to rush into air conditioning — they're open to buy right now and all through the year.

What a unit this 20-ton sweetheart is! Packs the cooling power of a central plant system—yet takes

up no more room than an ordinary 10-ton unit . . . and is easier to install and service. A natural for industrial applications—just add re-heat coils and optional equipment specified by consulting engineers. And it's the lowest cost air conditioning on the market. No wonder more Typhoon 20-ton units are in operation today than any other brand!

Get in on
this proven way
to make big money — send
this coupon today.

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AIR CONDITIONING

46 YEARS OF QUALITY ENGINEERING IN EVERY UNIT —with power reserve . . . over-size, all copper components . . . vibration insulated compressors . . . modern, flush door design.

Typhoon Air Conditioning Co., Inc.
595 Carroll St., Brooklyn 15, N. Y.
Send me full information on
Typhoon's 15-20-25-30 ton units—
Bulletin C-1

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____





Collecting Past-Due Accounts

Delinquent payments may be putting a crimp
in your profit picture, but still it pays to be careful
what methods you use in prodding
your slow-pay customers

by Harold J. Ashe

COLLECTION of past-due accounts is a universal problem confronting virtually every businessman. Refrigeration and air conditioning contractors are no exception. Discouraged and exasperated by their inability to collect certain accounts, some contractors resort on occasion to decidedly ingenious but highly questionable collection methods.

In using such unorthodox methods for the collection of delinquent accounts, a contractor may argue that the end justifies the means. A court of law, however, might not hold to this same opinion, so the contractor should proceed with extreme care in all such matters, lest he find himself on the losing end of a law suit brought by one of his debtors taking exception to the collection techniques employed.

Because a debtor fails to pay his just debts it does not follow that he surrenders all of his rights as an individual or that, beyond a certain point, he is at the mercy of his creditors. Too many creditors fall into this error to their own financial undoing.

Don't Call Them Deadbeats

A debtor may be a dead beat, but it is indeed a rash contractor who will call him such. A debtor may be a crook and a rascal, but to so dub him is to invite a libel suit.

A fine line may separate legitimate collection processes from those of harassment to the point where a debtor's health is adversely affected. If this is the case, the debtor may have grounds for suit.

Because a creditor is satisfied in his own mind that he is dealing with a sharpie it is not safe to assume that sharp collection methods are the answer. Within the past few years many states have passed legislation designed to curb unethical collection practices. By interpretation, more and more courts are restricting the actions of creditors in pressing collections. Even the Federal government

frowns on certain misuse of the mails in affecting collections.

To illustrate how a creditor can get involved in an expensive law suit by resorting to so called clever or sharp collection practices, consider the following case.

A creditor, in exasperation at inability to collect a debt, sent a postcard to a debtor which read: "Dear Milford, will be in town next week. Call me at 6843. Love, June."

The subsequent law suit, asking for \$25,000 damages from the creditor, brought out the following facts:

The debtor, prior to receipt of the postcard, was happily married and the father of two children. However, upon receipt of the postcard, the wife read the message and demanded an explanation from her husband. He could not give any. So his wife left him.

Is \$4 Worth \$5000?

Then the husband called the number and the creditor answered. He said the card was just his way of contacting the debtor about his account.

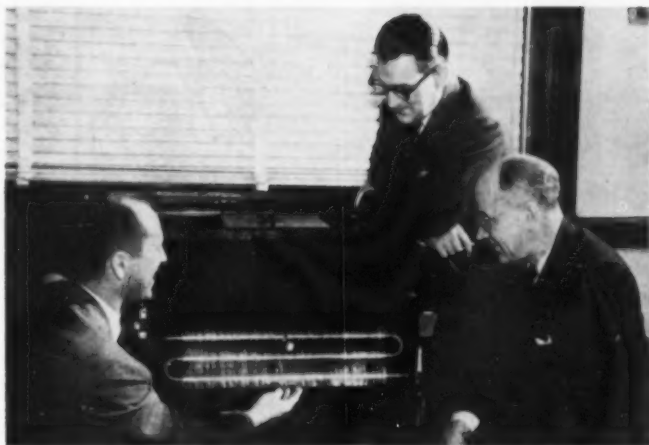
However, the debtor's wife had become distrustful and suspicious of her husband ever since, according to the debtor, and had left him on several occasions. The court awarded him \$5,000 plus court costs. The debt? It was for \$4.00!

Frequently, a creditor may be tempted to use defamatory language in the hope of so angering a debtor that he will be prompted to pay. Not only is it questionable whether such tactics will get the money, but there is the ever present danger that such abusiveness may lay the basis for a slander suit.

In respect to the choice of language, a creditor in relation to a debtor does not have special privileges not enjoyed by others. A word or phrase is slanderous or libelous, in itself, if it tends to degrade, disgrace or hold up a debtor to contempt or ridicule.

Words and phrases used against a person, a debtor or otherwise, which may form the basis of a slander or libel suit, include

Continued on page 103



A YEAR-ROUND CONSOLETTÉ room air conditioner, one of the more than 600 such units installed to heat as well as cool the Henry W. Oliver Bldg. in Pittsburgh, is explained by William Wood (right), Philco air conditioning engineer, to R.J.J. Tennant (center), building's chief engineer, and Joseph Mihm of J. E. Miller Co., Philco distributorship.

Solution: Room Coolers

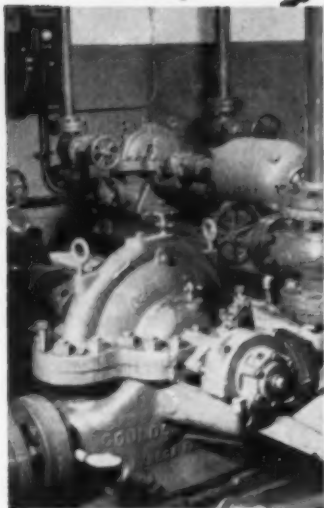
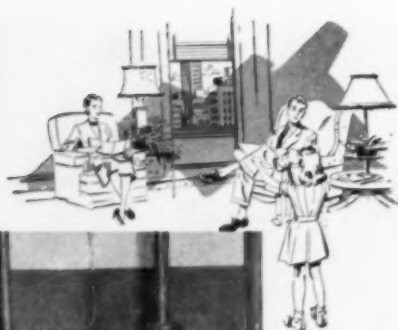
A major Pittsburgh office building has installed and tested a new heating and air conditioning system, using room air conditioners, that demonstrates how units of this type can be used to solve modernization problems in existing structure of this sort.

The new combination system, largest installation of its kind, uses a steam heating coil mounted in $\frac{3}{4}$ and 1 hp Philco consolette room air conditioners, and more than 600 of the units will have been installed in the building by late this summer. R. J. J. Tennant, chief engineer of the Henry W. Grady Building, in which the installation is being made, reports that costs of the new system for the 25-story structure were nearly 50% less than the lowest preliminary bid on various types of central air conditioning systems.

Besides giving the building satisfactory summer cooling, Tennant says, the new system should also result in more efficient operating of its heating system. Increase in heating efficiency is shown by the use of only one air conditioner with a heating coil in corner offices where formerly two cast iron radiators were needed. Better heat distribution was achieved since the air conditioner fan was used to circulate the heat in the room. More than 400 of the combination units were installed last year, and operated satisfactorily in both hot and cold weather, Tennant said.

A major tenant relations problem also was solved by the individual room air conditioners. Management of the building was reluctant to ask tenants to take air conditioning if they did not want it, as well as being concerned with the inconvenience that might accompany installation of a central system. With individual room units, the basic wiring job to handle the power load was put in without any major disturbance to offices in the building.

A copper heating coil, with a radiation surface equal in heat output to the largest cast iron radiator used in any room, was located in the plenum chamber of the room air conditioner. The air conditioner fan is operated by a two-speed motor, full speed for summer cooling and half-speed for heating.



Two of four Goulds pumps serving air conditioning system in Hotel Governor Clinton, New York.

These pumps insure cool comfort for Governor Clinton's guests

With 1,200 rooms to air condition, New York's Hotel Governor Clinton needs pumps it can depend on.

That's why the hotel's management selected Goulds pumps for their new air conditioning system. They knew the Goulds reputation for efficient operation and long, trouble-free service.

Three 2½" Goulds Fig. 3480 pumps handle this day-and-night assignment. Each has a capacity of 300 GPM under a 90-ft. head, and circulates water to the 200-ton cooling tower on the 29th floor. A smaller Goulds Fig. 3460 pump with a 90 GPM capacity handles the pumping job during low-load periods.

You, too, can insure efficient operation, and years of uninterrupted service, by specifying Goulds pumps for your air conditioning installations. There are models and sizes for every requirement.

Your Goulds representative will welcome an opportunity to help you select the right pumps to suit your needs. Or write directly to our home office in Seneca Falls. Your inquiry will receive prompt attention.



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Circle No. 64 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

A YARDSTICK for measuring basic cost factors in the installation of piping systems is contained in an eight-page, illustrated booklet published by A. M. Byers Co. The publication, "True Piping Economy," compares wrought iron and other types of pipe in terms of initial purchase, installation and maintenance costs. Contained in the booklet are several case histories of piping installations and a digest of important uses for wrought iron pipe.

Circle No. 111 on Reader Service Card

A NEW DATA SHEET on the use of California redwood in air washers, degasifiers, and precipitators, has been issued by California Redwood Association. The 2-page sheet describes the three types of units, gives the characteristics of the material recommended, and discusses maximum temperatures and types of metal fastenings for towers.

Circle No. 112 on Reader Service Card

BUYERS GUIDE for domestic heating controls, showing models, applications, and typical installations, is available from General Electric Co. Completely illustrated, the 16-page publication (GEC-1030) contains prices, ratings, dimensions and describes product features and service facilities on all standard heating control units.

Circle No. 113 on Reader Service Card

TYPICAL CASE HISTORIES, complete with actual installation photos, describe solutions to a representative range of vibration problems in a new four-page folder of Korfund Co. Designated as Bulletin K3A, the catalog gives latest data on stopping vibration, shock, and noise transmission and describes the Korfund "Series L" vibro-isolators. Capacities, characteristics and costs of highest efficiency isolation are given as well as drawings of 10 installation arrangements which cover almost all common installation problems.

Circle No. 114 on Reader Service Card

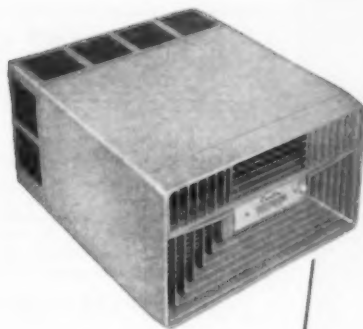
TWO NEW PROPELLER FANS, a by-pass duct fan and a double ring reversible fan are featured in a new 40-page, two-color catalog (A-109A) published by Hartzell Propeller Fan Co. In addition to information on the two new fans, specifications, dimensions, and performance figures are given on eighteen other types of industrial ventilating fans. Intake units, unit heaters and accessories are also pictured and described.

Circle No. 115 on Reader Service Card

INSULATING VALUE OF REDWOOD is the subject of a new data sheet (2D2-6) prepared by the California Redwood Ass'n. The folder provides concise tables comparing the thermal insulating value of redwood with other widely-used building materials as well as electrical and sound insulation tables. Several photographs are included which illustrate specific industrial and residential applications.

Circle No. 116 on Reader Service Card

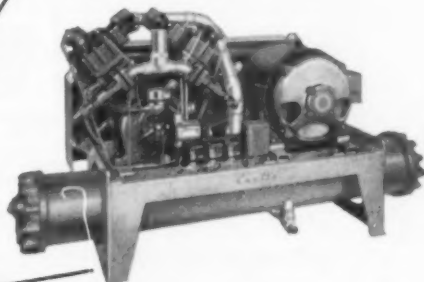
(More Air Conditioning Literature on page 94)



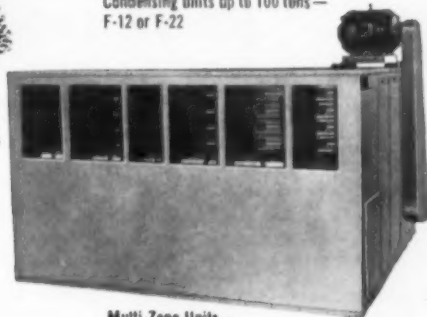
Window Air Conditioners



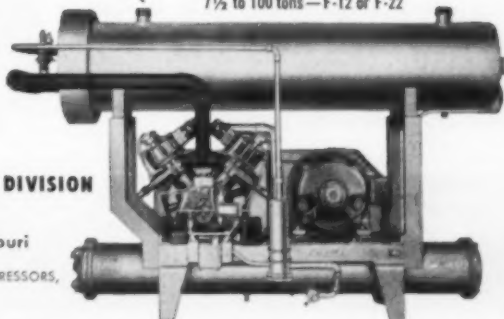
Packaged Air Conditioning units—2 to 20 tons



Condensing units up to 100 tons—F-12 or F-22



Multi-Zone Units—serving 2 to 8 zones



Packaged Liquid Chillers—7½ to 100 tons—F-12 or F-22

**More jobs...
More profit!**

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LINE**

You'll sell more jobs, and make more profit, with this well-rounded Curtis line. Curtis equipment sells readily because it is backed by one of the oldest and most respected names in the business. Curtis products are presold for you by hard-hitting national advertising in *Saturday Evening Post*, *Time* and *Newsweek*, plus many national business and trade magazines.

WRITE TODAY for information on how you can obtain a Curtis direct factory franchise.



Curtis REFRIGERATING MACHINE DIVISION

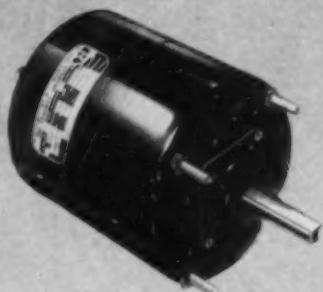
of Curtis Manufacturing Company

1915 Kienlen Avenue, St. Louis 20, Missouri

Other Curtis Products: INDUSTRIAL AND AUTOMOTIVE AIR COMPRESSORS, AUTO LIFTS, CAR WASHERS, AIR HOISTS

Circle No. 90 on Reader Service Card

50 MILLION MOTORS



CAN'T BE WRONG!



**THAT'S THE NUMBER OF
REDMOND MICROMOTORS
IN USE OVER THE PAST
25 YEARS**

**A CUSTOMER ACCEPTANCE RECORD BASED
ON LONG, DEPENDABLE PERFORMANCE!**

Compactness and simplicity of design have made these MicroMotors the most popular low-priced power packages in the field of shaded pole motors. Features include selectively fitted self-aligning porous bronze bearings, plus impregnated windings highly resistant to oil and moisture. An excellent choice where open ventilation is suitable and light weight desirable. For advice on your motor problems see your local distributor, or write us directly.



Redmond DISTRIBUTORS, INC.
OWOSSO, MICHIGAN

Circle No. 66 on Reader Service Card

AIR CONDITIONING LITERATURE . . .

Continued from page 92

MOTOR CONTROL SPECIFICATIONS will be greatly simplified for users of a new 42-page, illustrated publication (EC-80) of Cutler-Hammer, Inc. Specifically designed as a help in selecting electrical components, the booklet supplies all the motor control data needed for air conditioning, heating, ventilating, pump, and compressor equipment. Also described is the complete Cutler-Hammer motor control line.

Circle No. 117 on Reader Service Card

TIPS ON BLOWERS is the title of a 6-page folder issued by Viking Air Conditioning Co., giving handy information on installing, adjusting, and servicing any make of heating or cooling blower. Included are convenient check-lists for instructing owners. The folder is suitable for on-the-job reference.

Circle No. 118 on Reader Service Card

LOW-HEIGHT AIR CONDITIONERS for commercial installations are described in a new two-page, three-color illustrated bulletin of American Blower Corp. Construction, operation and maintenance of five self-contained, floor-type air conditioner sizes of from 3 to 15 tons capacity are discussed. A selection table lists cabinet dimensions, specifications for compressors, fans and filters, nominal capacity and CFM ratings.

Circle No. 119 on Reader Service Card

SPECIFICATION SHEETS on its air handling units, air-cooled condensers and forced draft cooling towers have been issued by Deansteel Products. The two-color literature gives design, dimensional and performance data on each unit and is illustrated with photographs and engineering drawings.

Circle No. 120 on Reader Service Card

COMPREHENSIVE REPORTS by independent consulting engineers on air conditioning installations in various types of buildings are presented in the "1954 Architectural File Folder" available through "Kinetic" Chemicals Div. of Du Pont Co. Discussions of air conditioning in television studios, office buildings, banks, motels, and department stores are included and each article contains several photographs showing installations. A separate section discusses the proper location of air conditioning equipment.

Circle No. 121 on Reader Service Card

GAS POWERED AIR CONDITIONER is the subject of a six-page, 2 color folder published by Cobell Industries, Inc. The literature gives salient product features and performance characteristics, contains operating cost comparison chart for various types of units, and includes cut-away views of condenser and gas engine assemblies.

Circle No. 122 on Reader Service Card

PRODUCTS AND FACILITIES of Patterson-Kelley Co. Inc., are described and illustrated in a new four-page, two-color bulletin (No. 4001). Eleven photographs and five piping diagrams help to show the company's line of special and standard air conditioning and refrigeration equipment which includes a patented slug eliminator and balance loader. Manufacturing facilities are shown as well as four stages in the fabrication and testing of equipment.

Circle No. 123 on Reader Service Card

(Turn to page 61 for more Useful Literature)

WHAT'S NEW

in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

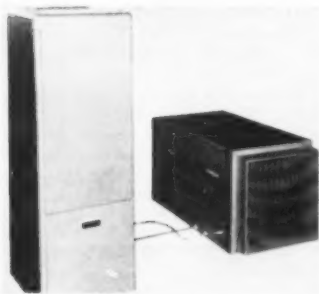
(For more New Products turn to page 64)

Cooling Units

Product: New line of 2 and 3-ton residential and commercial spot cooling units.

Manufacturer: Perfection Stove Co., Cleveland, Ohio.

Features: New models include both air-cooled and water-cooled units. Except for fan types, both the residential and commercial units have the same basic design and dimensions, and occupy 22 sq. in. of floor space. Both types have a remote condenser section connected to



evaporator by means of copper tubing and quick disconnect fittings. Coils have quick connect fittings at each end. Residential models use a centrifugal type blower while commercial units use propeller-type fans. Full rated capacity of air-cooled models is delivered at 95 degree ambient temperatures and efficiency of water-cooled units has been increased up to 15 Btu's per watt. Units may be used by themselves or in conjunction with forced warm air heating systems and may be installed in 30 different ways for up-flow and downflow operation. Residential models are finished in silver-tone brown and commercial units are finished in canterbury gray baked enamel.

Circle No. 131 on Reader Service Card

Pneumatic Thermostat

Product: Model TO-910 "Pneumatic Round" thermostat for commercial temperature control.

Manufacturer: Minneapolis-

Honeywell Regulator Co., Minneapolis, Minn.

Features: Operates on force balance or "continuous feedback" principle which provides an exact air pressure signal for a given temperature deviation which is detected by the unit's bi-metal sensing element. Larger, low-mass sensing element provides speedier response to temperature changes and reduces lag in heating and air-conditioning system response time. Direct-action dial provides easy setting and temperature indication. Adjustable stops inside instrument limit adjustment range or lock control at a single point. Unit has fewer moving parts



than previous types, is designed for both flush and surface mounting, and contains a replaceable filter.

Circle No. 132 on Reader Service Card

Residential Conditioners

Product: New line of six residential add-on conditioners and six year 'round residential air conditioners.

Manufacturer: Mitchell Mfg. Co., Chicago.

Features: Add-on units are built in two separate sections and are available in 2, 3, and 5 ton models, both air and water cooled. Unit has hermetically sealed cooling system mounted in "slide-a-way" chassis which slides out from cabinet without removing electric controls, damper linkage, baffles, or sheet metal parts. Fresh and return air

ducts can be placed on any of the unit's four sides. "Electromag filter eye" measures filter efficiency and switches on warning light when filter should be replaced. Piping can be connected through back or either side. Water-cooled models are fitted with cleanable condensers fitted with lint collector and oversized 1 1/4" drain hole. Air-cooled models



have remotely located condenser. Refrigerant flow is controlled by cap-tube system. Safety features include high and low pressure cut-outs on refrigerant system and thermal overload switch to protect compressor. Year 'round units are available in 1 1/2, 2, and 3 ton capacity, air or water cooled summer air conditioners, in combination with 70,000, 125,000 and 150,000 Btu/hr gas fired furnaces.

Circle No. 133 on Reader Service Card

Home Air Conditioner

Product: New line of home air conditioning equipment.

Manufacturer: Harvey-Hill, Inc., St. Louis, Mo.

Features: Units employ a new "soaker coil" principle which is claimed to effect "simultaneous triple heat transfer", and give cooling capacity beyond other equip-



ment of similar size now on the market, at lower cost. At present, 2 and 3-ton units are being made, with a 5-ton unit planned. Company claims that 2-ton unit will cool a five-room house with water usage of 9 gallons a day, compared with about 3500 gallons for similar size unit without

water-saving device. Three-ton unit is said to use only 14 gallons of water per day, and 5-ton unit 22 gallons. As compared with air-cooled conditioners, the company claims these new units are more compact, less expensive to operate, and more efficient at high temperatures, when cooling is needed most. So-called "triple heat transfer" effect is obtained by combination of water and air coils as follows: heat is picked up and absorbed from the refrigerant in the coils. In the "soaker coil" this passes through a coil surrounded by porous jacket of nylon or plastic material. Water is circulated inside space between jacket and tub-

ing. As this takes place some water is absorbed in jacket and emerges to outer porous lining where it evaporates and cools jacket. This in turn cools the water, which has same effect on the refrigerant. A special air coil also is in the unit to work in conjunction with "soaker coil" to achieve greater heat transfer and less use of water.

Circle No. 134 on Reader Service Card

Packaged Air Conditioners

Product: Complete line of central-system summer air conditioners.

Manufacturer: Bryant Div.,

Carrier Corp., Syracuse, N.Y.

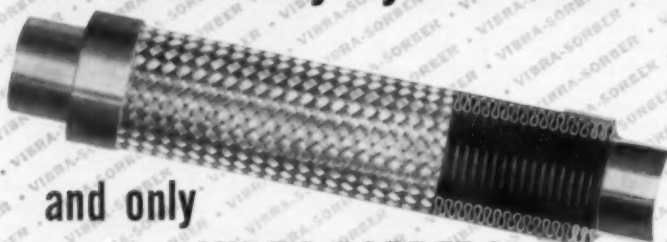
Features: Units have a special air-cooled refrigerating device which eliminates need for external water supply. Extra capacity is obtained by using water removed in dehumidification of conditioned air to supplement air-cooled condensing. Can be



installed with minimum ductwork to air condition homes without central heat and can also be used to convert forced warm air systems to year-round conditioning. Units can be suspended from ceilings or placed in attic or crawl space. Available in 1½, 2 and 3 hp models.

Circle No. 135 on Reader Service Card

Genuine VIBRA-SORBERS® are made only by FLEXONICS



and only
genuine VIBRA-SORBERS®
give you all these plus values—

● The best way to be sure of your vibration connections to and from the compressor is to be sure that the connections are made with genuine VIBRA-SORBERS. And it is not a genuine VIBRA-SORBER unless it is made by Flexonics Corporation.

In addition to the advantages listed at the right, genuine VIBRA-SORBERS feature a special corrugation formation combined with a balanced bronze braid designed to provide maximum resistance to fatigue and the maximum in vibration and noise absorption.

Don't be misled, be sure you get genuine VIBRA-SORBERS. Available in all standard sizes from ½" through 4" I.D. Bulletin 139 gives full VIBRA-SORBERS specifications. Write for your copy.

✓ **HIGH QUALITY SPECIAL BRONZE ALLOY**—98.75% copper, 1.25% tin, assures maximum resistance to fatigue under constant flexing and vibration.

✓ **LISTING BY UNDERWRITERS' LABORATORIES** in sizes 3/16" through 1½".

✓ **HIGHEST CLEANLINESS STANDARDS** prevent foreign matter being brought into system. Vibra-Sorbers delivered to you with ends sealed.

✓ **APPROVED BY MAJOR MANUFACTURERS**—the standard of the industry as original equipment.

✓ **NEATLY PACKAGED AND LABELED** for easy, convenient stocking.

Flexonics Corporation

Flexon identifies products of Flexonics Corporation that have served industry for over 53 years.



1321 S. THIRD AVENUE • MAYWOOD, ILLINOIS

— FORMERLY CHICAGO METAL HOSE CORPORATION —
Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

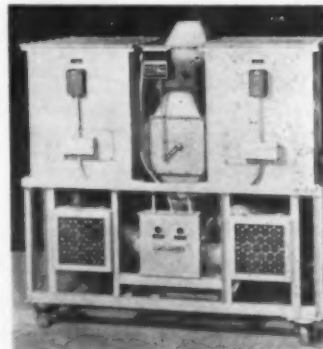
Circle No. 89 on Reader Service Card

Self-Adjusting Dehumidifier

Product: Model T-150 adsorption type, heavy duty dehumidifier with thermostatic control.

Manufacturer: Dryomatic Corp., Alexandria, Va.

Features: Dual-tower unit is automatically regulated and makes use of silica gel as drying agent. It is designed to maintain humidities as low as 10% in areas up to 60,000



cu. ft. over a wide range of temperatures. Machine has dry air output of 150 cfm and is said to be capable of removing 4 to 5 lbs. of water per hour. Motor-operated four-way valve alternately directs air from one silica gel tower to the other providing constant flow of dry air while electric heating elements automatically regenerate silica gel in tower not in use. Thermostats control regeneration cycle, making machine self-adjusting to atmospheric conditions. Compact, and mounted on casters for easy relocation, the unit

requires only standard electrical outlets and minimum of duct work. Machine measures 51 x 28 x 44", weighs approximately 400 lbs., and is finished in light gray enamel. Circle No. 136 on Reader Service Card

Expanded Cooling Line

Product: Residential and small commercial units added to air conditioning line.

Manufacturer: Coleman Co., Wichita, Kan.

Features: Equipment added for residential use includes plenum cooling units, vertical coolers, and self-contained units. Both plenum and vertical units are designed for use



with the company's "Air Mist" condensing units as well as with water cooled types. Commercial coolers added to the line include 3 and 5-ton packaged units. The new residential units are adaptable for small commercial establishments where ductwork is required. The two 2-ton and three 3-ton plenum units fit all models of gas and oil "Blend-Air" furnaces. Refrigerant is Freon-12. Width of all models is 19 1/4". Height varies from 13-11/16 to 17" and depth varies from 15 to 32". Vertical cooler is made in nominal capacities of 1, 2, 3, and 5-tons. Refrigerant is Freon-12. All models are 60" high. Widths vary from 16 to 23 3/4" and heights vary from 28 to 37". The three self-contained models are nominally rated at 2, 3, and 5-tons. The 2 and 5-ton models use Freon-12 and the 3-ton, Freon-22. All models are 58" high and 25" wide. Depth is 30 1/2" for 2 and 3-ton models and 37" for 5-ton size. Circle No. 137 on Reader Service Card

Solar Screening

Product: "Koolshade" Type SC solar screening with high corrosion-resistance.

Manufacturer: Reflectal Corp., Chicago.

It's just good sense:

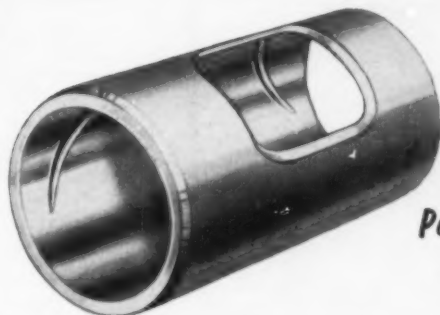
Wagner Replacement Parts for Wagner Motors—

Genuine Joe says:

"when it comes to replacements, the best bearings for Wagner Motors are Wagner Bearings"



Highest quality



Perfect fit

"You wouldn't put kerosene in your car's gas tank, so why put anything but the real McCoy—Wagner sleeve bearings—in your Wagner Motor?"

Easy to replace with the Wagner Bearing Tool!



"You'll find it's easy to replace the old bearing with a new Wagner bearing when you use the special Wagner bearing tool. A single, easy operation removes the old bearing and aligns the new bearing perfectly. There's no pounding, no reaming...and with the Wagner bearing tool, you can't botch the job or ruin the bearing.

"While we're at it, my boss says Wagner bearings are precision-bored, steel-backed and babbitt-lined to give them extra load-carrying capacity. What that means is Wagner bearings are carefully made so that they last longer than ordinary bearings. They won't seize or grab and they don't corrode. A complete line of sleeve bearings for all Wagner Motors is carried in stock by Wagner branches."



WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

**MOTORS - BEARINGS - STANDARD MOTORS
BRUSHES - CAPACITORS - COMMUTATORS**

**SEE OUR EXHIBIT AT THE 9TH EXPOSITION
AIR-CONDITIONING AND REFRIGERATION INDUSTRY
ATLANTIC CITY — NOV. 28 - DEC. 1 — BOOTH NO. 237**

Circle No. 68 on Reader Service Card

**See you at
BOOTH 304
9th EXPOSITION
Air Conditioning
& Refrigeration
Industry
Nov. 28 to Dec. 1
ATLANTIC CITY**



VIKING
copper tube co.
CLEVELAND 10, OHIO

WITT
Zone Air
ROOM UNIT
AIR CONDITIONER



**For New and Old
Construction**

"Miraculously Quiet" Zone Air, ideal for hotels, motels, hospitals, offices and other applications where silence is essential. No costly duct work—no tearing out partitions in existing buildings—simply connect pipes from unit to a cooling or hot water system.

Used with direct expansion, combination heating and cooling with water or direct expansion and steam—individual control. 14 sizes: 300 to 1200 CFM. Concealed or cabinet type models.

Write for information

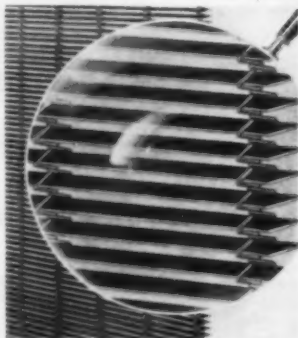
A. H. WITT COMPANY
940 N. Sycamore Av., Los Angeles 30

WITT
Coils

OVER 30 YEARS
RELIABLE SERVICE

Circle No. 70 on Reader Service Card

Features: A new type of plastic coating is electrostatically sprayed on both sides of bonderized steel louvers. The new protective coating is said to insure up to nine times the corrosion-resistance of oxidized



bronze and up to 37 times that of aluminum. Coating was tested against salt spray, humidity, caustics, acids and impact. Screening consists of tiny horizontal louvers set at the precise angle to screen out maximum amount of solar heat and glare. Product is said to require no adjustment, maintenance or painting.

Circle No. 138 on Reader Service Card

Flow Indicator

Product: Liquid flow indicator for balancing warm water heating and chilled water cooling systems.

Manufacturer: Bell & Gossett Co., Morton Grove, Ill.

Features: The "Thermoflow" balancer indicates water flow rate through a circuit up to 10 GPM. Built-in valve adjusts flow rate to



desired setting. Thermometer is visible through sight glass. Device is said to reduce time required for proper balancing of systems by visual checking of water flow rate in GPM. Unit is noiseless in operation and permits easy correction of pipe sizing errors.

Circle No. 139 on Reader Service Card

Portable Air Meter

Product: Model 60 air meter for direct measurement of air temperature, velocity and static pressure.

Manufacturer: Anemostat

Corp. of America, New York City.

Features: Instrument is useful for balancing, testing and checking warm air heating, ventilating and air conditioning systems. Measures air velocities from zero to 3000 fpm, temperatures from zero to 255 F, and static pressures in ducts from zero to 8" water gauge. Instantaneous readings may be taken directly from the instrument. Multiple ranges assure maximum readability and conform with customary conditions of usage. Non-directive probe enables readings to be obtained in free spaces as well as in ducts or other confined areas. Standard flashlight batteries are used as power source. Instrument measures 10 3/4 x 9 3/4 x 4 3/8" and weighs about nine lbs.

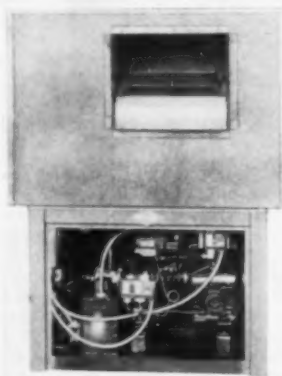
Circle No. 140 on Reader Service Card

Combination Conditioner

Product: Model "DA" combination air and water-cooled residential air conditioner.

Manufacturer: Union Asbestos & Rubber Co., Chicago.

Features: Unit is designed for use in either water-short or high-water-cost areas, or where restriction



have been placed on the use of water for air conditioning. Uses less than 10 per cent of the water required by conventional types and can be installed with any existing forced warm-air furnace. Unit is available in 2 and 3 hp sizes and has a dual condenser system—one air-cooled, one water-cooled. Most of the time unit operates on the air-cooled compressor alone, but when outside temperature reaches 95 F, the water-cooled condenser automatically turns on for a brief period.

Circle No. 141 on Reader Service Card

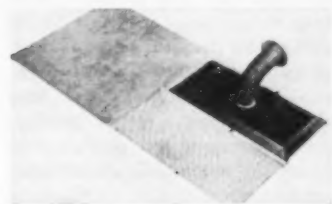
Air Diffuser

Product: "Modular" multi-vent air diffuser for draftless air conditioning and uniform temperature control.

Manufacturer: Multi-Vent Div.,

Pyle-National Co., Chicago.

Features: Unit has perforated ceiling panel to introduce air vertically and at low velocity. Reduces velocity of air in duct from 1,000 to 1,500 fpm to 40 or 50 fpm as it leaves unit. Can be used in ceilings having various combinations of acoustical treatment, illumination, fireproofing, radiant heating and cooling. Can be completely concealed from view, offers no inter-



ference with light fixtures, and permits complete freedom of partition movement. Panels are available for a wide variety of ceilings, including metal pan, plaster, and acoustical tile. Makes possible draftless air conditioning, particularly where high number of air changes is required and advantages apply equally well to heating and ventilating systems.

Circle No. 142 on Reader Service Card

Velocity Meter

Product: "Florite" velocity meter for measurement of throat velocities on ceiling air diffusers.

Manufacturer: Bacharach Industrial Instrument Co., Pittsburgh, Pa.

Features: Instrument's "Air Scoop" inlet fits both circular and



square diffusers. Readings are obtained by holding the open end of the inlet against diffuser outlet. Instrument is designed to eliminate guess work in making necessary volume adjustments in multiple-outlet systems, so that each diffuser will deliver the specified volume of air.

Circle No. 143 on Reader Service Card

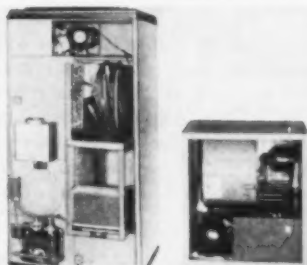
Counterflow Unit

Product: "Luxaire" year-round conditioner with downward air flow.

Manufacturer: C. A. Olsen

Mfg. Co., Elyria, Ohio.

Features: Unit is designed for perimeter air distribution systems in houses without basements. It has

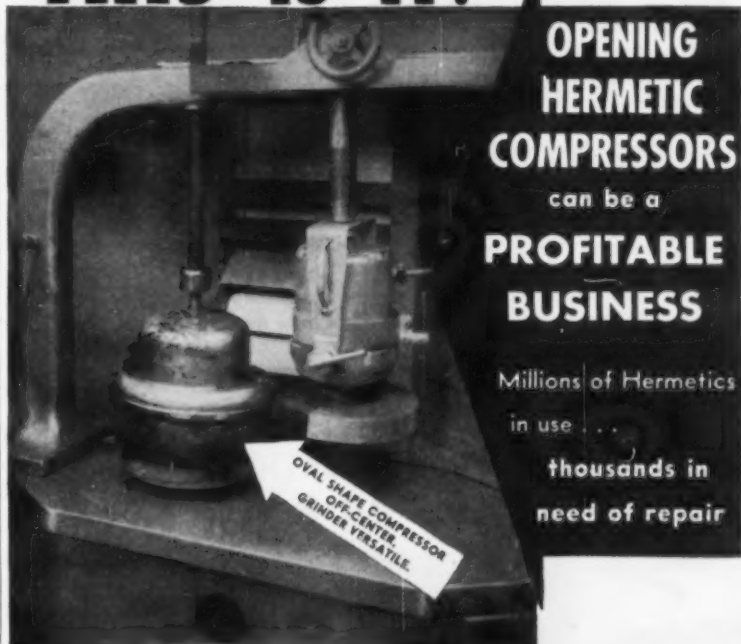


cooling coil installed vertically within furnace cabinet to provide efficient drainage of condensate and prevent redistribution of moisture into air ducts. Gas or oil-fired heat is optional, and choice of air or water-cooled 2-ton refrigerant circuit. With water-cooled unit, heating and cooling are in a single cabinet. With air-cooled unit, condensing group is separate for mounting at any distance up to 50'.

Circle No. 144 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

THIS IS IT!



**OPENING
HERMETIC
COMPRESSORS
can be a
PROFITABLE
BUSINESS**

Millions of Hermetics
in use ...
thousands in
need of repair

the NEW-SIMPLE-TO-OPERATE **FRANKELL'S HERMETIC COMPRESSOR OPENER*** EASILY OPENS ANY COMPRESSOR UP TO 20" IN DIAMETER

A compact, semi-automatic machine that can open any size or shape compressor, regardless of the location of weld. A "do-it-yourself" machine. Simple to operate, requiring no special skills or any training.

The repair of HERMETICS 'is a MUST' for every progressive service company.

Get the full FRANKELL story at your local refrigeration jobber or write direct for complete information.

SIZE: 48" x 24" x 48"
Approx. Weight: 350 lbs.
(*Pat. Pend.)



FRANKELL MFG. CO.

1074 HOME ST. NEW YORK 59, N. Y.

EXCHANGE HERMETIC
STATORS AVAILABLE.
SEE YOUR LOCAL JOBBER.



Circle No. 71 on Reader Service Card

AUTOMOBILE COOLING ...

Continued from page 85

lations resulted. That's a mighty fine batting average in any league!

Word-of-mouth, Huff finds, is by far his most effective advertising medium. "Salesmen by nature are both gregarious and loquacious," he points out. "Wherever they meet—in highway restaurants, motels, or hotel garages—they'll spout off at the slightest opportunity on the merits of their air conditioned automobiles. While we make no attempt to place any kind of an advertising label anywhere on a customer's car, we do candidly ask each one of our customers to refer us to his friends if he is satisfied with the installation we have made."

Demonstrator cars are always kept available with the engines run every half hour or so to keep the conditioners "ready to go" at a moment's notice. Salesmen who drop in to investigate the possibilities of purchasing a unit for their own cars are invited to make a

few local calls in one of Automobile Air Conditioning Co.'s demonstrators at the dealer's expense.

To dramatize the product somewhat, one of Huff's salesmen will sometimes drive these demonstrators as much as 25 miles and arrive at his destination wearing coat, hat, and necktie, in order to impress the prospect with the cool comfort which he had been enjoying.

Convincing Mrs. Prospect

"One thing we have found very helpful in selling any type of customer," Huff points out, "is to take his wife for a ride in one of our demonstrator cars. 'We can't afford to forget for a minute that the distaff side of the average family has a lot to say about the purchase of automotive air conditioning, just as with the automobile itself, and not infrequently a short ride will convince the wife that car cooling is a good investment.'"

This year Huff has been making slow but, he feels, sure progress in cracking the "do-it-yourself" market for automotive air condition-

ing. Inviting signs in front of the agency's headquarters read "Do it yourself—\$298". This is part of a definite program calculated to interest lower-income families, the owners of better used cars, and similar classes, in adding air conditioning to the family car.

So far this year, Huff reports, the results of this program have been very encouraging. Along with selling the air conditioner and all materials at the \$298 price, Automobile Air Conditioning Co. furnishes a complete set of installation instructions and plans which allows the automobile owner who can take a weekend off for the purpose to do a thoroughly creditable job of cooling his own car.

CARRIER PLANS NEW CALIFORNIA PLANT

An option on a 68-acre tract of land near Puente, Calif., 18 miles east of Los Angeles, has been taken by Carrier Corp. The company is making plans to concentrate its west coast manufacturing operations in buildings to be erected on the property.

NoDrip

...STOPS CONDENSATION DRIP



NO DRIP PREVENTS RUST — ANYONE CAN APPLY

NoDrip plastic coating is easily applied to tanks, containers, suction lines, vats, pipes, walls, ceilings, etc. NoDrip adheres to metal, concrete, brick, plaster. It forms a seamless 100% moisture-proof covering that is effective as soon as dry. Acid, alkali and brine resistant.

FREE...

Interesting 32-page Handbook shows what NoDrip is and what it does.

SEND COUPON TODAY

SEND NoDRIP HANDBOOK

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J. W. MORTELL CO. • 553-J BURCH ST. • KANKAKEE, ILL.

TECHNICAL COATINGS SINCE 1895

Circle No. 73 on Reader Service Card

Is Space an Important Factor?

Then Use This Distinguished Line of Close-Coupled Pumps



These GMC Pumps are ideal for a multitude of jobs. Smooth and efficient whether vertical, horizontal, up-side-down or any inclination. Low first cost, low power and maintenance costs. Top quality "by Aurora."

Cops. 10 to 800 G.P.M.
Heads to 250 Ft.

Type GMC
Aurora Close-Coupled Pump

Write TODAY
for
CONDENSED
CATALOG "M"

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA® PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

21 LUUCKS STREET

AURORA • ILLINOIS

Circle No. 72 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION

PRINTED FORMS . . .

Continued from page 47

At the right hand side of each page are six vertical columns. The first of these shows the quantity of any item taken out to a job. The second shows the quantity returned unused from the job. The third shows the quantity actually used.

Column four provides space to mark the unit price. The last two columns are for the dollars and cents of the total item charge.

These same sheets, of course, can also be used for job estimating.

The third form used is a "daily time report." This may be for as many as four jobs in a single day, but separate tickets may be made out for individual jobs in some instances.

Time Report Informative

A time report is filled in by each employee who goes out on a job. It lists his name, the date, and the name and address of the customer, at the top.

Six horizontal lines are then provided in which to identify the nature of the job.

The next line, for the ultimate convenience of the company's billing clerk, provides check-squares in which to indicate whether the job was a new installation or a service call, whether it is complete or incomplete; also whether a service call is to be billed to customer or is in performance of a guarantee.

Vertical columns have spaces to mark departure and arrival times of traveling; start and finish times on the job itself at straight time rates; and start and finish times on the job at overtime rates. Spaces also are provided for the total hours of each of the separate entries.

At the far right of this section of the record sheet are columns to record the total of straight job time combined with traveling time, the total hours at overtime rates, and the grand total after computing the overtime differential.

A line at the bottom of the page is for the entry of total mileage in which an employee has used his own automobile on a job. For this

he is recompensed at 8 cents a mile for normal driving, and at 10 cents a mile if he is transporting anything heavier or more bulky than his regular tool kit.

Corresponding to the location numbers on the card-listed stock records, the company keeps its supplies in bins or other locations where they may be quickly found. But the responsibility of gathering the items to be taken to a job and of listing the quantities on the three-page cost sheet is reserved for the proprietor or for the

company's stock clerk who doubles as shop repairman.

By such practice, there is better assurance of accuracy in the records. Men cannot pick up a handful of some small item and then "guess" the number that they choose to enter.

More importantly, a common source of time wastage is averted by having either the proprietor or the stock clerk assemble the precise number of items which each job will require. It eliminates time lost by one man standing idle

Your No.1 DEMAND . . .

the CONDENSER must be

CLEANABLE

Because . . .

CLEANABILITY costs no more, for even the smallest models.

CLEANABILITY is available now from many unit manufacturers.

CLEANABILITY maintains new-unit efficiency indefinitely by removing corrosion accumulation.



1/3 through 25 ton—all Water-cooled, Double-tube, Counter-flow. Seamless copper tubes. Brass Headers machined and brazed.

Why not insist that your next unit have a CLEANABLE water-cooled condenser? Especially since leading manufacturers, one after the other, are recognizing the "must" advantages of accessibility to cleaning and are equipping their units accordingly. Initial purchase cost is no higher, and longer life and more economical performance are guaranteed. The CLEANABLE feature enables you to recover new-unit efficiency and thus maintain 100% economical operation indefinitely. Water-tubes are accessible from both ends on all size models.

Wholesalers in Principal Cities
Write for descriptive literature.

HM
Halstead & Mitchell

OFFICES: Bessemer Building, Pittsburgh 22, Pa.

Circle No. 74 on Reader Service Card

Jiffy Fit



The NEW DOUBLE STRAP AIR CONDITIONER PROTECTOR

The only REAL fit for ALL model window air conditioners.

Only FIVE sizes and stock numbers.

Attractive forest green fabric.

Clear plastic packaging with visible instruction sheet.

Inexpensive.

A fast and easy seller.

Contact

**TULSA CANVAS
PRODUCTS CO., INC.**

P. O. BOX 2072

Tulsa, Oklahoma

while a second man blocks access to one location or another. It also assures that no man will get to a job with an insufficient quantity of items needed, or with some item omitted.

The same technique is used further in respect to any special tools that may be required.

Standard practice in this company is to assemble all supplies and special tools in individual kit boxes several hours in advance of the time they will be taken out by the men assigned to outside jobs. Especially this practice prevents a common cause of wasted time when it is applied to jobs to be started at the beginning of each day.

Employees reporting for work at the starting hour thus never need to mill around headquarters waiting for their supplies one-by-one to be assembled. All they need to do, instead, is pick up their kits and depart—usually a matter of something less than five minutes.

Likewise, when an outside man returns from a job, except at the end of a day, everything is ready for him to start out again at once

on another. He simply returns any left-over items to the stock clerk, who credits them to the job material sheets, and then restores them to their correct locations.

After the job is complete, the job sheets clearly show the exact quantity of materials used. Only then is that quantity entered (in pencil) by the stock clerk in the "quantity disposed" column on the main stock inventory cards. At the same time he subtracts that amount from the previous quantity on hand, as shown, and enters the quantity remaining in the next column.

In making that entry, any need for re-ordering is automatically called to the clerk's immediate attention, and the chance of running out on any item is reduced to a minimum.

As far as inventory and production control are involved, that is the complete sequence of the simple record keeping in this shop.

Each day, however, the billing-and-paying phase of the firm's bookkeeping also is simplified by turning over the clear records of the shop to the front-office clerk-stenographer. For her it is an easy matter to run off the charges of each job on an adding machine and enter the totals onto ledger records and statements. Also, it is similarly easy for her to total the daily time sheets of each employee, and to compute his weekly check for wages.

"It's a system that works fine for us," says Jack Ruthrauff, the proprietor. "I should think it would do equally well for a great many others."

NO Stuck Pumps FOR ME NEXT SPRING!



PUMP-AID is the new aerosol product giving push-button protection against corrosion and stuck pumps on seasonally operated cooling towers, evaporative condensers, etc.

To protect against corrosion and other down period problems, inject PUMP-AID through drain hole into pump housing immediately after draining. PUMP-AID is supplied in aerosol canister using Freon type propellant which instantly spreads a generous (patent pending) coating over all surfaces. PUMP-AID is also highly beneficial in preserving neoprene, rubber and graphite type seals.

Other outstanding PUMP-AID features are: It will not freeze; will not evaporate; requires no special job preparation; adheres to surfaces permanently until flushed off;

is water soluble—not necessary to drain when new season starts, (just throw switch and begin operation); non-toxic—may be used for domestic pumps if properly flushed; economical to use. Protect "YOUR" pumps with PUMP-AID now!

...and for COMPLETE WATER TREATMENT in refrigeration and air conditioning water recirculating systems, use Vapco Cleaner, Vapco Preventive, Vapco Slime-X and Vapco Ice Cube Machine Cleaner. Available at your favorite wholesaler, or write...



The GARMAN COMPANY
ST. LOUIS 13, MISSOURI

UTILITY COMPANIES HELP COLEMAN IN TEST WORK

Cooperating with the Coleman Co., Wichita, Kan., in its development of practical residential gas-energized air conditioning, gas utility companies are now running field tests on 33 gas motor units. The test program is expected to produce data that will permit final modification of the model for marketing in 1956.

This is the second cooling season in which utilities have aided Coleman in field test work. Nineteen experimental units were on test last year.

PAST DUE ACCOUNTS . . .

Continued from page 91

charges of embezzlement, blackmail, extortion, false pretenses, swindler, crook, dead-beat, robber and numerous synonyms.

Derogatory remarks may be written or oral. If oral they may form the basis for a slander suit; if written, a libel suit. In the former case, the remarks must be uttered within the hearing of a third person to lay the basis for damage.

In a libel suit, the remarks must be "published". However, the term "published" has a special meaning in law. The sending of a telegram has been ruled "publication" in that a third person, the party taking or sending the message, has read it. Dictated letters have also been ruled to constitute "publication," in that the stenographer has read the communication.

Splitting Legal Hairs

In some law suits, courts have ruled that a corporation is a single entity and that, therefore, there is no publication. This is legalistic hair-splitting that can't be counted on, however, as not all courts see eye to eye on this.

Even where the creditor personally physically writes the letter himself, the communication may still be published and be actionable if he has reason to believe that it will be opened and be read by a third person. It, of course, is not actionable, if the person to whom the letter is addressed opens it first and then passes it along to a third person.

It is risky to demand payment on threat of bankruptcy proceedings or criminal prosecution. Courts may interpret this as extortion.

Until a few years ago, it was not uncommon for creditors, either singly or as a group, to publish or threaten to publish lists of delinquent debtors in local newspapers. Courts now consider such published lists as libelous, per se. Advertising accounts for sale falls in substantially the same category. Courts take the view such accounts are not advertised for sale in good faith, but that such advertising is

merely a thinly concealed device to force payment by holding up debtors to public ridicule and humiliation, and that this constitutes libel.

In this connection, contractors should be cautioned concerning the use of form collection letters which they may purchase from commercial sources. Such form letters may be well within the law of the state in which the letters are printed, yet not be legally sound in other states where used.

It should be obvious that physical force is never justified in the collection of a debt. However, refined forms of harassment may also result in physical injury or mental suffering. Courts, in increasing numbers, are taking judicial notice of such offensive tactics in effecting collections.

While creditors need not use care to avoid shocking their debtors, the court, in one case, observed that creditors "should refrain from conduct intended or likely to cause physical illness."

Some years ago, a short story appeared in one of the nation's biggest magazines in which the

Why Guess?

...when you can be sure with

LIQUID EYE®

The industry-accepted indicator for all refrigeration purposes.



LIQUID EYE "100"

in 1/4" and 3/8" flare and O.D.S. sizes in the 100 Series.



LIQUID EYE "200"

in 1/2" and 5/8" flare and O.D.S. sizes in the 200 Series.

LIQUID EYE MEANS: perfect refrigerant visibility • strate-thru flow • leak-proof • high safety factor • spring loaded gaskets • standard wrench flats • instant analysis of refrigerant condition.

Sold by leading Wholesalers. Send for Catalog D-55, covering the complete Allin Line.



Allin

MANUFACTURING COMPANY

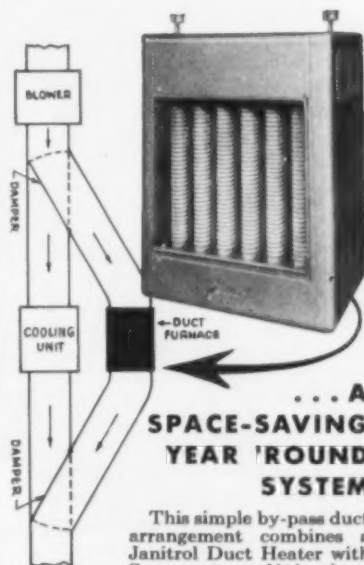
1143 West Grand Ave. Chicago 22, Ill.

Circle No. 78 on Reader Service Card

Why experts prefer Janitrol Duct Heating for year 'round systems

Cooling experts know the Janitrol name means dependability and quality. The Janitrol Gas-Fired Duct Heaters install fast in either heating and/or cooling systems. They have a proved record of amazing durability . . . since 1940, in over a million heat exchanger tubes, less than 1/4 of 1% have been replaced for any cause!

WRITE FOR DETAILS ON PROFIT OPPORTUNITIES WITH JANITROL



... A SPACE-SAVING YEAR 'ROUND SYSTEM

This simple by-pass duct arrangement combines a Janitrol Duct Heater with Summer conditioning. Dampers are shown in Winter position to by-pass cooling coil.



Janitrol products are engineered by Surface, makers of the famous furnaces that heat most of the products of American industry.

Janitrol
HEATING AND AIR-CONDITIONING DIVISION

Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Alvar Simpson Ltd., Toronto 12

ALSO MAKERS OF SURFACE INDUSTRIAL FURNACES AND KATHAR HUMIDITY CONDITIONING.

Circle No. 77 on Reader Service Card

hero, a businessman, triumphed over adversity by his unique collection methods. One of his stunts was to picket delinquent debtors by carrying a sign calling attention to their indebtedness. The sequel to this fiction was that several readers took the thing seriously, and actually tried it on their own debtors. There followed a series of damage suits that didn't have any happy ending for the creditors.

Postcards may be used to solicit payment of current accounts or as reminders of accounts payable. However, cards that are so phrased as to indicate accounts are past due, and which therefore reflect on the debtor, are unmailable, according to the rules and regulations of the Post Office Department. The same postal regulations forbid the use of postcards to threaten suits, garnisheeing of wages or other action to enforce collection.

It should be observed that while time-tested orthodox collection methods may not get the spectacular results sometimes attributed to the more flashy collection devices, neither do orthodox collection practices invite expensive damage suits by irate debtors.

REMINGTON ANNOUNCES NEW MARKETING PLANS

With the growing importance of Remington Corp.'s new "Incremental System" for air conditioning large multi-room apartment houses, office buildings and hotels, and its new "3rd Way System" for air conditioning multiple rooms in the home, the company plans to consolidate its growing position in the air conditioning field, according to Herbert L. Laube.

Immediate plans call for balancing the engineering and development of all four divisions of its product line, with increasing emphasis on the selection of sales outlets that have the technical ability to market and service all of its air conditioning products.

Laube said that Remington does not plan to suspend the sale of its room air conditioners within the United States under the Remington brand name.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

WATER CHILLING . . .

Continued from page 83

adequate coil surface for heating or cooling, centrifugal fan and motor, and permanent cleanable-type air filters. All of this is enclosed in a neat and attractive free-standing cabinet, the top of which is provided with discharge louvers for the conditioned air.

A stand-by auxiliary pump for circulation of the water also was installed for emergency use. In case of pump failure, it is only necessary to turn a single switch to cut the second pump into the



system. In actual practice, each pump is used for approximately six months of the year in order to give the two units equal wear.

While a typical example of this sort of application, the Mid-City installation also is a typical example of the sort of equipment compromises which often are required in selling air conditioning systems to extremely cost-conscious users, according to Donald E. Delp of Heating & Cooling Equipment Co., Usairco representative in the Columbus area, who designed the system.

The ideal way of handling this job, Delp points out, would have been to provide individual room control through the installation of separate thermostats in all suites, and to have provided a fresh air intake connection to each of the room units. Both of these measures were dispensed with by the owner, however, for reasons of economy in the original installation.

In place of a thermostat, each of the room units is equipped with

a 4-speed fan switch. In this way, comfort conditions in the room are determined not by the temperature of the air but rather by the volume of air being circulated. Thus, the room's occupant, should he desire more or less heating or cooling, must move the fan speed switch to a higher or lower position rather than adjusting a thermostat to the desired temperature.

Can Open Windows

As no fresh air intakes were provided for the room units, it is necessary for guests to crack at least one window open to allow the desired amount of fresh air to enter the room. Ample capacity was provided in the room units to allow for this method.

While neither of these practices is recommended, Delp insists, they did cut the cost of the installation down sufficiently to satisfy the owner, and in actual operation the system seems to have been performing perfectly satisfactorily.

For summer cooling, water temperature in the system is controlled to about 50 F at the central station unit. On the winter heating cycle, a constant boiler temperature of 190 to 200 F is maintained. So simple is the year-round operation that to change from cooling to heating it is only necessary to switch three valves.

Condenser Air Intake

Fresh air intake for the evaporative condenser is provided through a permanent opening in the basement wall, while air is exhausted from this portion of the unit through a grille opening into the motel's parking area.

To satisfy the owner's demands, and despite the code provisions prohibiting recirculation of air, Delp actually figured this installation for central station forced air equipment as well as for the circulating water system. Largely because of the long runs of ductwork which would have been required, the wet system actually worked out more economically.

While Delp's organization designed the system and supplied all of the equipment, actual installation of the various units and of the piping was handled by Duckworth Plumbing & Heating Co.

"Low-Cost Business Insurance

...that's what we call

American Vibration Eliminators"

UNITED REFRIGERATION SERVICE, INC.

COLUMBUS, OHIO



"WE PROTECT OUR CUSTOMERS against loss of business, merchandise and expensive charges of refrigerant—and protect our company's good name by using American Vibration Eliminators . . . the best answer we've seen to the vibration problem," says K. Milton Colwell, installation manager of United Refrigeration Service, Inc.

United Refrigeration's customers include three large supermarket chains and many restaurants, all of which are concerned with food preservation. For these customers, a cracked line on a refrigeration system means not only the loss of the refrigerant charge, but also a merchandise loss that could amount to thousands of dollars.

"Installing Vibration Eliminators is not merely a matter of convenience," Mr. Colwell continues, "it's insurance against tangible business losses. Providing this kind of insurance through the use of Vibration Eliminators is just good common sense."

United Refrigeration Service president, Oscar Reese, says, "The best way to indicate our satisfaction with Ameri-

can Vibration Eliminators is to point out that American is the *only* VE we use and specify. We've practically eliminated line fractures where they are used. American VE's are the best answer we've seen to the vibration problem!"

American Vibration Eliminators are listed by Underwriters' Laboratories, Inc., in sizes $\frac{1}{4}$ " OD through $3\frac{5}{8}$ " OD. For descriptive folder write The American Brass Company, American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Company, Ltd.

041100

K. Milton Colwell, installation manager of United Refrigeration Service, inspecting the American Vibration Eliminator on one of 12 refrigeration compressors recently installed in a supermarket.

FOR AMERICAN VIBRATION ELIMINATORS SEE YOUR

ANACONDA®

DISTRIBUTOR

Circle No. 86 on Reader Service Card

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Comparing Costs of Refrigerant Condensing Systems Can Help Determine Need for Water Conservation

by Hugo C. Smith

EVERY refrigeration engineer seems to have his own personal preferences when it comes to the selection of refrigerant condensing systems. This difference of opinion is just as prevalent among engineers in a specific local area as among those in diverse geographical locations.

The importance of water conservation has been so strongly stressed during recent years that many customers are more than willing to include some form of water conservation equipment on their installations, despite the fact that the cost of such equipment per ton of refrigeration may be higher under certain conditions than that of conventional water cooled condensers. Many customers, in fact, virtually insist upon the inclusion of some water conservation medium in their jobs, regardless of the economics involved.

Obviously it would be to the advantage of the customer—and in the long run to the contractor, too—to base the decision as to whether or not to employ water conservation equipment on sound dollars-and-cents calculations.

In the accompanying graphs and tables we are attempting to give the application engineer a quick approximation of the relative operational costs of the four types of condensing systems. In analyzing the various systems, these factors were included: installed cost of equipment, which was amortized over a period of 15 years; and interest on the investment, figured at 5%. Operational costs were calculated to include the following factors: water supply; power supply; water treatment; and

maintenance cost (based on a labor rate of \$3.30 per hour).

In evaluating the evaporative, cooling tower, and air cooled condensing systems, only the additional first cost of these systems over and above the standard water cooled condenser was used. Figures are based on 40 F suction and the following condensing temperatures:

Continued on page 108

EVAPORATIVE COOLED*

Tons	Annual Cost per Ton
10	\$21.00
25	14.00
50	12.00
75	11.00
100	10.50

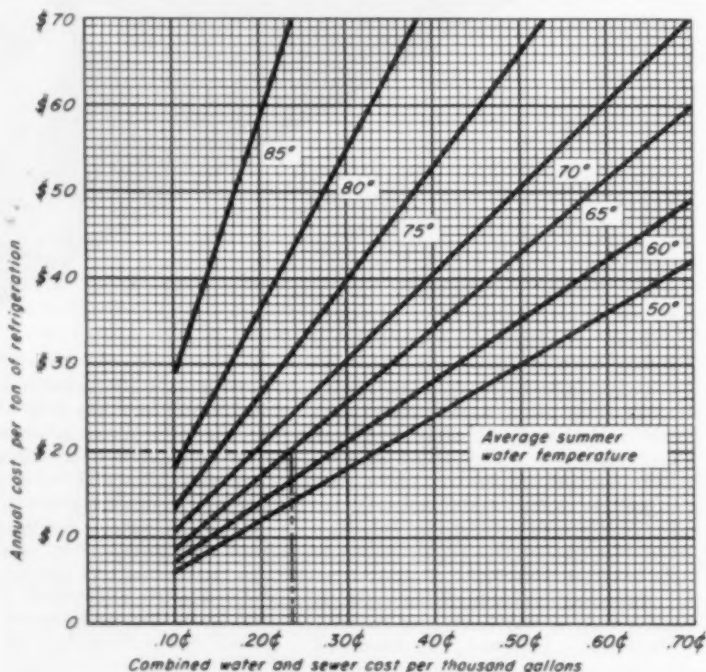
COOLING TOWER* (Forced Draft)

Tons	Annual Cost per Ton
10	\$25.00
25	17.00
50	14.00
75	13.00
100	12.50

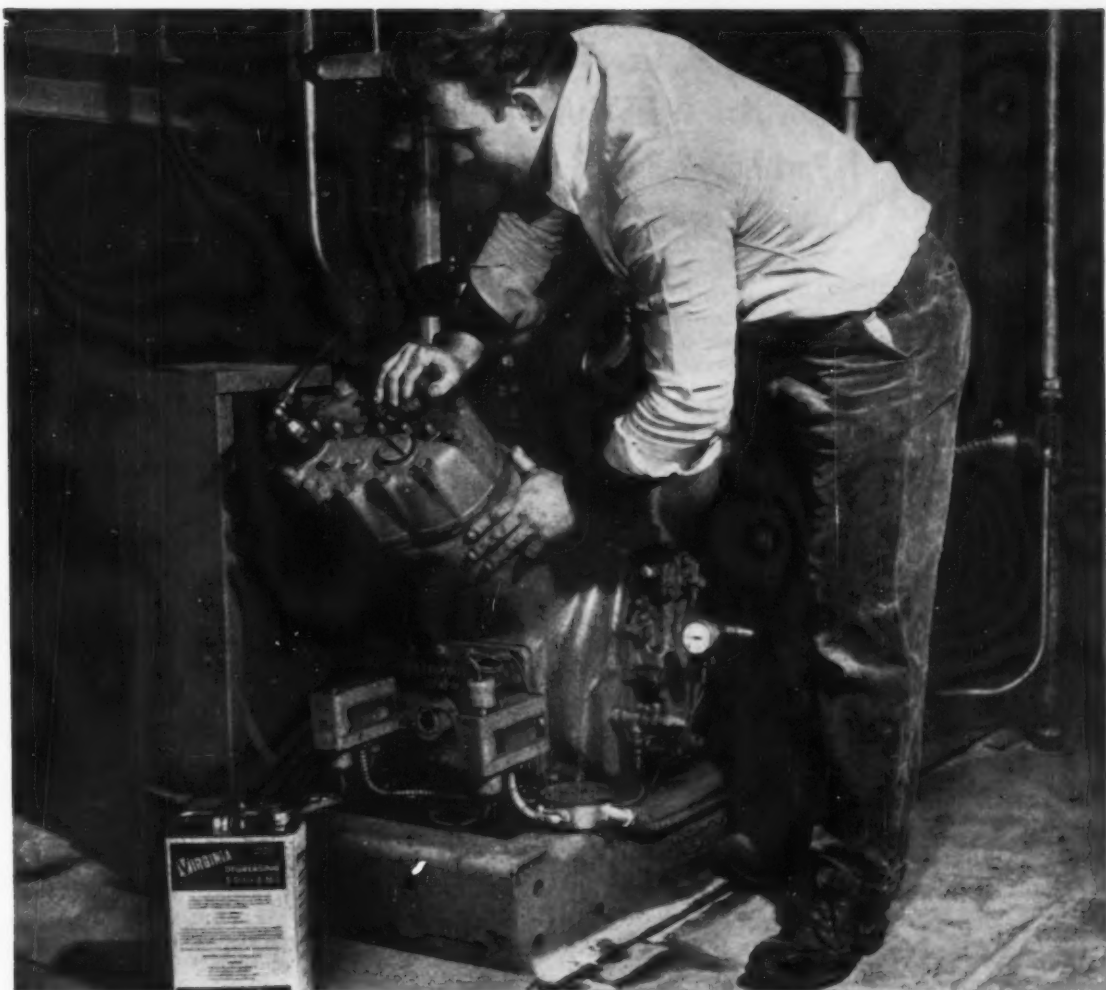
AIR COOLED

Tons	Annual Cost per Ton
10	\$22.40
20	19.20
—	—
—	—
—	—

*Data in these tables is based on information compiled by C. E. Groseclose, Jr., installation engineer, Carrier Corp., Atlanta, Ga., branch.



OPERATING COSTS FOR WATER COOLED CONDENSERS can readily be approximated from this graph. Simply select the proper water cost on the bottom line, follow the graph up to the curve indicating the appropriate average summer water temperature, then follow this line to the left to determine the annual cost per ton of refrigeration. This graph is based on 840 equivalent full-load operating hours per year, 40 F suction, a labor rate of \$3.30 per hour, equipment cost amortized in 15 years, and an interest rate of 5%.



Whatever you want a degreaser to do Virginia No. 10 does—better

Virginia No. 10 is the trade name for a new type of degreasing solvent made expressly for refrigeration, electrical and automotive use. Virginia No. 10 removes oil, grease and grease-bound dirt in no time flat. Even more important, it can be used with comparative safety. You can stand a concentration of 200 parts per million for hours without harm—it's only about $\frac{1}{8}$ as toxic as carbon "tet"—flammability hazard is low.

In addition to very good drying properties, Virginia No. 10 is noncorrosive and, unlike some solvents, will not cause machined parts to rust. Nor will it attack

electrical insulation or leave any current-carrying residue. Virginia No. 10 is available in 1-gallon factory-filled cans from your favorite wholesaler. Or write Refrigeration Division, VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.

VIRGINIA *Chemicals*

ESOTO • KINETIC CHEMICAL'S "FRED" REFRIGERANTS • V-METH-L • CAN-O-GAS
PERMAGUM • PRESSTITE TAPE • SUNISO REFRIGERATION OILS
Available in Canada and many other countries



Only about $\frac{1}{8}$ as toxic as carbon "tet."



Virginia No. 10 is perfect for electrical parts.

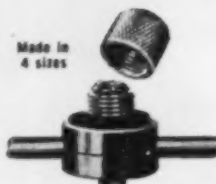


Does not readily burn—low flammability hazard.

Servicemen Prefer WATSCO Line Tap Valves . .



And Now A NEW ADDITION:— Part No. LT-3 for 3/16" Tubing



Made in
4 sizes

LINE-TAP VALVE

Small, compact hermetic valve that is easily installed on the lines of systems, piercing the tube without discharging refrigerant, to provide a port for charging, discharging or testing. Conforms to tube, eliminating top heavy assembly . . . will not loosen or develop leaks due to vibration . . . will not bend or crimp tubing. Use with Watsco Control Valve, Part No. CV-1.

Part No. LT-4 for 1/4" Tubing
Part No. LT-5 for 5/16" Tubing

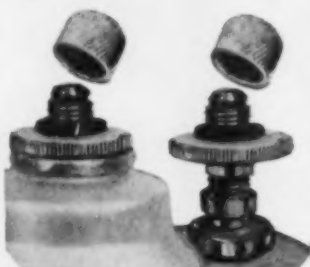
Part No. LT-6 for 3/8" Tubing
Part No. LT-8 for 1/2" Tubing
Part No. LT-3 for 3/16" Tubing

LINE-PORT VALVE with T-S CONNECTION

U. S. Pat. Pend.

Provides a port for sealed units when it is desirable to cut the line that is to be tapped. No top heavy assembly to vibrate loose. The addition of the T-S Connection permits a huge variety of installations whereby one may be flared, the other soldered, or both ends either flared or soldered. Use with Watsco Control Valve, Part No. CV-1.

Part No. LP-4 for 3/16" sweat; 1/4" sweat; 1/4" flare.
Part No. LP-6 for 1/4" sweat; 5/16" sweat; 1/4" sweat; 1/4" flare.



CAN-TAP VALVE

Screws on to Charg-A-Can refrigerant disposable containers. Valve stem needle pierces the can seal and operates as a regular valve allowing removal of refrigerant. Easily shut off and sealed. No large protruding parts when in closed position. Use with Watsco Control Valve, Part No. CV-1.

Part No. CT-1

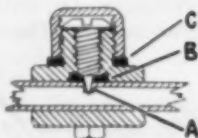
CONTROL VALVE

Designed expressly for use with LINE-TAP VALVE, LINE-PORT VALVE and CAN-TAP VALVE. Plated tool key with a screw arrangement that easily opens or closes these valves. Quick coupled—installed without wrenches. To operate: screw Control Valve on to any of the three valves and turn to open; then close, unscrew Control Valve and remove. Use over and over again, one tool for hundreds of jobs.

Part No. CV-1



3 POINT SEALING PREVENTS LEAKS



- Needle pierces line and seals.
- Taper of needle plus gasket forms second seal.
- Kurled brass cap plus gasket in positive third seal.

SEND FOR
WATSCO'S NEW
1955 CATALOG!

BOOTH
809



WAGNER TOOL & SUPPLY CORP. REFRIGERATION PARTS & TOOLS
30-08 22nd STREET LONG ISLAND CITY 1, N. Y.

MANUAL . . .

Continued from page 106

Water cooled—98 to 104 F.
Evaporative condenser—105 F.
Cooling tower—105 F.
Air cooled—115 F.

In the case of the air cooled condenser an allowance of 8% was made to cover loss of capacity due to the higher condensing temperature.

As an example, to illustrate the use of this data in evaluating and comparing the cost of various condensing methods, assume a water rate of 23½ cents per 1000 gallons and an average summer temperature of 65 F. Referring to the water cooled condenser graph and following the dotted line up from the 23½-cent water line to the 65 F average summer temperature curve, and then left to the annual cost per ton of refrigeration, it is apparent that this figure would be \$20. This cost may then be compared with the annual cost per ton of the other condensing systems as shown in the accompanying tables.

These figures can be considered to be only approximate and average, due to the many variable conditions involved. If for any given job the per ton cost figures for the various condensing methods fall within reasonably close limits, it would be wise to prepare for each system a separate and detailed cost analysis which would take into account exact local conditions.

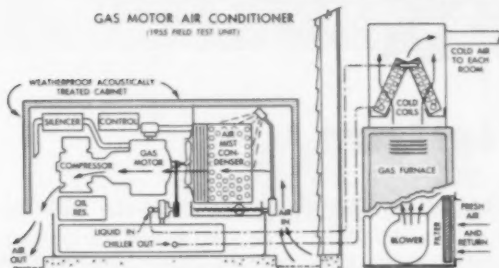
NEW DISTRICT OFFICES HANDLE "FREON" SALES

Establishment of its own independent New York and Chicago district sales offices has been announced by the Du Pont Co.'s "Kinetic" Chemicals Div.

Charles Wirth III was named New York district manager, with Norman W. Kent as Chicago district manager. The new offices, which will handle sales of "Freon" refrigerants, aerosol propellants, solvents, and fire extinguishing agents, went into operation Sept. 1 and will be located in existing office quarters of the company's Organic Chemicals Dept.

West Coast sales of the "Freon" compounds will continue under the direct supervision of the Los Angeles district office of the company's Organic Chemicals Dept., with A. J. Mease as manager.

COLEMAN FIELD TESTS NEW GAS-POWERED RESIDENTIAL COOLING SYSTEM



MAJOR COMPONENTS of the gas-motor-driven air conditioning unit developed by Coleman Co. are shown in this schematic drawing. The refrigerant circuit is entirely self-contained. Chilled liquid lines leading from the remote unit to the cooling coil inside the house would be simple to install. The cooling coil shown is an inverted-V type installed in a furnace plenum, but



a separate interior cooling unit with its own blower could be used. The photo shows two remote gas air conditioning units mounted outside a large house used for field tests of the new system. Two units were used for zone control. Insulated, weather-proof cabinet panels were removed to show the mechanism. Limited production is planned for next year.

16 NEW DISTRIBUTORS NAMED BY UNARCO

Sixteen new distributors have been franchised recently by Union Asbestos & Rubber Company's heating and cooling division.

The new "Unarco" distributors are: C. E. Malone Company, Inc., St. Louis, Mo., Hyman Refrigeration Co., Richmond, Va., Todd Roberts Co., Inc., Wichita, Kans., Stone Heating & Ventilating Co., Washington, D. C., Kleinman Brothers, Inc., Baltimore, Md., Aaron Torch & Sons, Inc., Macon, Ga., Kay Engineering Co., Omaha, Neb., Covert Co., Kansas City, Mo., Colonial Plumbing Corp., Albany, N. Y., General Air Conditioning & Equipment Co., Inc., Memphis, Tenn., Modern Appliances & Heating Co., Oklahoma

City, Okla., Rupprecht Bros. Heating & Air Conditioning Co., Jennings, Mo., Air Equipment Distributors, Inc., New York, N. Y., Heating & Cooling Products, Chicago, Ill., and Noland Co., Inc., Spartanburg, S. C.

NEW FIRE SAFETY PAMPHLET AVAILABLE

An 18 page pamphlet (90B) describing new and revised "Standards for the Installation of Residence Type Warm Air Heating and Air Conditioning Systems" is now available. The pamphlet may be obtained by sending 35¢ to the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

WORTHINGTON ACQUIRES NEW JERSEY PLANT

Worthington Corp. has purchased a 15 acre factory site formerly owned by Crocker-Wheeler Electric Mfg. Co., in the Ampere section of East Orange, and Newark, N.J. The transaction includes 12 buildings, totaling over 330,000 sq. ft. of working floor space.

The acquisition will be used to partially accommodate the manufacture of the company's large central station air conditioning equipment and the manufacture of standard pumps. Headquarters offices for engineering, sales, and service for Worthington's Air Conditioning and Refrigeration Div. will be moved to the Ampere site from the present location at Harrison, N.J., as will several other local departments now occupying rented quarters.

\$100,000 WORTH OF RESEARCH FACILITIES



SCIENTIFIC RESEARCH in heating and air conditioning equipment was begun recently in a new \$100,000 technical laboratory of Union Asbestos & Rubber Co., in Chicago. Among the features of this enterprise is a room in which any climatic condition from humid tropical heat to dry sub-zero temperatures of the Arctic can be duplicated. Above, two of the company's technicians are shown testing the air velocity of a "Dual-Vector," one of Union's products.

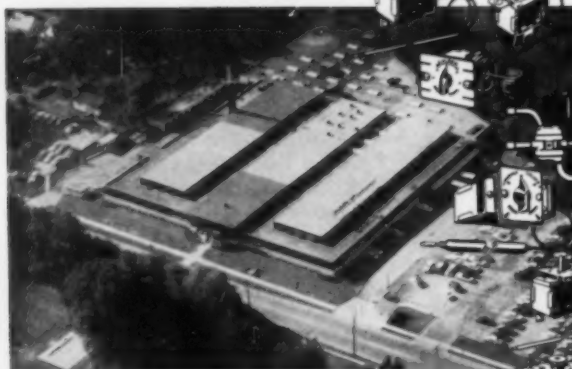
GIBSON EXPANDS AIR CONDITIONING ACTIVITY

The Gibson Refrigerator Co. has announced the formation of a new company division to manufacture and market the Gibson line of commercial, residential, and industrial air conditioners.

The Gibson Air Conditioning Div., headed by Earl Palmer, manager of commercial and residential air conditioner sales, will headquarter in Greenville. Regional personnel will be located throughout the United States to aid and educate distributors and dealers. The division will also work with Gibson's International Sales Div. to stimulate sales abroad.

Ranco Invites ARI Visitors

... to discuss your control applications with us, and we would like to tell you more about our products. So come to visit us at our exhibit—Booth 334—at the 9th Exposition of the Air-Conditioning and Refrigeration Industry Show in Atlantic City at Convention Hall, November 28 through December 1. We look forward to seeing you there.



Columbus, Ohio



Delaware, Ohio



Plain City, Ohio



Motherwell, Lanarkshire,
Scotland



Ranco Inc.

COLUMBUS 1, OHIO

World's Largest Manufacturer of Refrigeration Controls

Circle No. 81 on Reader Service Card

OCTOBER, 1955 • COMMERCIAL REFRIGERATION

THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Power Factor Is Index of Room Cooler Performance

Where horsepower and fuel consumption are considered standard measures of performance in the automotive industry, power factor is rapidly becoming an important index of room air conditioner performance. Power factor is an electrical characteristic. The higher it is (the closer to 100%), the lower the amperes of electric current that are used for the same motor load, and the lower the operating cost.

The lower current reduces the loading on house wiring circuits, minimizes the problem on blown

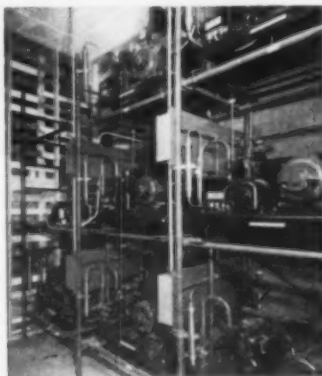
fuses, and keeps electrical installation expense at a minimum. This is of particular advantage on 115-volt room air conditioners, because many people desire to install them

and transformers are reduced.

This was not too important until the last few years when room air conditioners suddenly made a tremendous impact on the comfort conscious public. By 1953 such units were being installed at a rate of about 1,000,000 a year and the demand was and is growing rapidly.

Such a volume of new installations added greatly to the electrical current loads on many power distribution systems, requiring heavier transformers and extensive system changes. So higher power

A GOOD EXAMPLE



DO YOUR JOBS look as good as this one when you've finished with them? This equipment room lineup is one that any service contractor would be proud to show off. It uses a minimum of space, each condensing unit has plenty of "breathing space", and the lower ones are up off the floor so that the room can be kept clean. Note also the neatness and similarity of each individual compressor tubing hookup. Room for another condensing unit is provided for on the top row, at left. Units are identified by number as to the equipment they serve, making maintenance quick and easier. The company that installed this equipment knew its business.

on existing 115-volt house wiring circuits. In such instances, the amount of added current load is extremely important.

The electric service companies are also interested in high power factor room air conditioners. In the same way that the resulting lower currents can be better handled by the wiring in houses, the current loads on the power lines

I DO IT THIS WAY

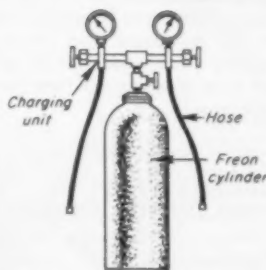
If you're ever faced with a situation in which you need a new dehydrator and none is available, here is a means which we have found to reactivate the old drier.

Heat the drier a little with a brazing torch and at the same time pull a low vacuum on it with a hand or electric vacuum pump. Sometimes when the valves are placed near the drier it is not necessary to remove it entirely from the system. Moisture will boil or evaporate from the drier at 100 F if a vacuum of about 28 inches is pumped on it.

This procedure is recommended for emergency use only, and should never be used if a replacement drier is available.

C. Burger
Spenard, Alaska

I DO IT THIS WAY



TESTING, setting controls and charging of a refrigeration system can be simplified by mounting a charging manifold on a three or four pound refrigerant cylinder as shown in the accompanying drawing. The two 1/4" charging hoses can be kept clean and dry when not in use by joining them with a 1/4" SAE flare union.

I find that this arrangement, which weighs about 8 pounds, saves the time and trouble involved in lugging around and hooking up a heavy refrigerant cylinder.

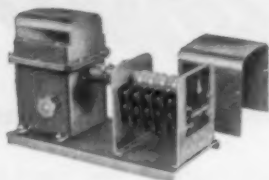
W. P. Fox
Columbia, S.C.

factor room air conditioners, with lower current requirements, will contribute a great deal to maintaining adequate power supply during the hot summer months.

Lower operating costs of units with high power factor design result from less electrical losses in



Program Switches



with speed, switch, and differential adjustments

- For multiple step control of compressors, pumps, valves, or relays, in refrigeration, air conditioning, or processing applications
- Complete driving mechanism submerged in oil and enclosed in a sturdy case
- Convenient adjusting knob for increasing or decreasing speed
- Driving unit, cam shaft, and line voltage, snap-acting switches mounted on a single base plate
- Switch and differential settings are easily changed in the field
- Operate from Microtherm or proportioning pressure switch. Also used with non-snap-acting instruments for floating control

Consult nearest Field Office or write . . .

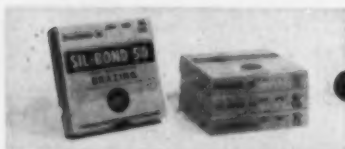
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F-1449-6

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DEPT. V, 1338 ROCK STREET, ROCKFORD, ILLINOIS

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Compare SIL-BOND coils with any other brand for purity, cleanliness and uniformity of temper . . . comparison is SIL-BOND's best salesman!



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SIL-BOND is better drawn, tighter coiled so it unwinds easier, saves costly preparation time! Important in hand fed brazing . . . vital in automatic brazing!

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Better Because It's Made Better and Packaged Better!

Dependable United Product Analysis Makes The Brazing Difference!

ALWAYS Braze with SIL-BOND or PHOSON!
Ask for SIL-BOND Booklet NOW!

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Ninth Exposition of Air Con-
ditioning and Refrigeration
Industry"

UNITED WIRE



AND SUPPLY CORP.
Brazing Alloy Division
PROVIDENCE 7, RHODE ISLAND
Offices in
PRINCIPAL CITIES

Circle No. 83 on Reader Service Card

the circuits, due to the lower current. In addition there are usually other factors in such a design which provide further operating economy.

The power factors of room air conditioners have generally been in the range of 60 to 80%, with most operating around 70 or 75%. The trend in all room conditioners, however, is towards higher power factor (in the area of 90%) because of the many advantages it brings to the user and home owner.



WANT TO EARN \$57

Then dream up some good idea for saving yourself time, money, or aggravation on a service call, and tell us all about it. Just jot it down on the nearest scratch pad, together with a sketch if you think that would help, and send it to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor agrees that your idea is worthwhile, he'll make your dream come true by publishing it in the magazine and promptly sending you a check for \$5. Why not start reaching for that pencil right now?

SHERER-GILLETT CO. SCHOLARSHIP AWARDED

George W. Hopkins has been selected as this year's winner of the annual Sherer-Gillett Co. scholarship in refrigeration technology at Ferris Institute, Big Rapids, Mich. The two-year course has a cash value of \$1200. Hopkins was selected by a committee composed of school officials, teachers and company management. By coincidence, young Hopkins' father, Benjamin Hopkins, is in Sherer-Gillett's refrigeration experimental and product development laboratory, and his grandfather, George Rickabaugh, is a foreman of refrigeration assemblies at the company.

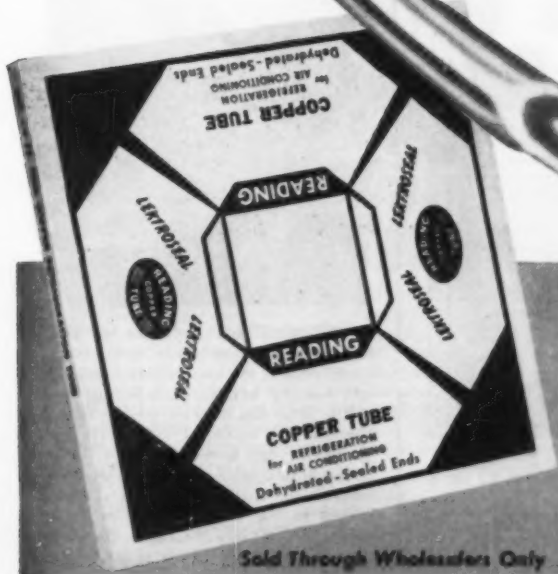
READING

"LEKTROSEAL"

COPPER REFRIGERATION TUBE

FIRST STEP in a Quality Installation—

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Sold Through Wholesalers Only

REPLACEMENT . . .

Continued from page 88

Probably more replacement orders are placed because of failure of outmoded equipment than for any other reason. Money cost of a shutdown for any considerable time may easily exceed the cost of any needed replacement. So dependent upon air conditioning are many business establishments that standby equipment will be considered a good investment after

costs of failure are experienced or estimated.

Dependability includes ability to maintain required conditions. These may have become more rigid than when the system was installed and load probably increased. Most users insist on proper conditions whenever required and are willing to invest enough to be sure they can be maintained.

A form which may be used to compare true costs of owning an existing system and one in which replacements are recommended, in

a manner which a commercial user can understand, is presented at the beginning of this article. Costs may be less or more for the recommended equipment. If more, the customer must decide whether better performance will justify the additional cost. With this estimate, a complete proposal showing in detail the exact recommendations along with illustrations, should be submitted.

MOTOR CONFERENCE TO STUDY COOLING USES

A conference on "The Application of Motors to Space Heating and Cooling Equipment" will be held in St. Louis, Oct. 19-20, at the Chase Hotel. The conference is sponsored jointly by the Single Phase and Fractional Horsepower Subcommittee of the Committee on Rotating Machinery and the St. Louis Section, American Institute of Electrical Engineers.

The technical program consists of 16 papers offering broad coverage of the conference subject. The sessions will be open to all interested persons.

CAR-HOP COOLING



A "DRIVE-IN" air conditioner, to give patrons of outdoor movie and eating establishments the same comfort as they get indoors, has been developed by A.R.A. Mfg. Co., of Fort Worth, Texas. The new unit is similar to a room air conditioner and is mounted on a stand above or alongside a parked car. Two tubes extend from the unit and are attached to the car window. One tube pumps cool air into the car in the summer, and warm air in the winter, while the other tube acts as return-air vent.

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Heat breaks down unstable oils, and compressors are running hotter.

The trend in recent years has been to steadily higher operating speeds and temperatures. Refrigeration engineers expect this trend to continue.

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Cells and Piping
Cold Storage Doors
Freon Refrigerants

Air Filters
Automatic Controls
Charging Connections

FAN, BLOWER SHIPMENTS SHOW 6-MO. INCREASE

Shipments of fans, blowers and related equipment in the second quarter of 1955 were valued at \$55 million, 1% above the value of shipments for the first three months of the year, according to the Bureau of the Census.

Value of orders booked during the second quarter amounted to \$53 million, 5% below the \$55.8 million for the preceding quarter.

Shipments of unit heaters and related equipment in the second quarter amounted to \$14.5 million, an increase of 3% from shipments of \$14.1 million in the first quarter of 1955. The value of orders booked during the second quarter was \$16.5 million, up 13% from the \$14.6 million reported for the preceding quarter.

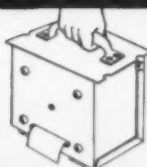
LEAVES FOR INDIA

Morton R. Berger, application engineer for the Worthington Corp., has left for India. He will train engineers in that country in the application of equipment.

Calendar of Industry Conventions

Oct. 8-15	International Dairy Show	Chicago, Ill.
Oct. 17-19	American Gas Association	Los Angeles, Calif.
Oct. 24-28	Dairy Industries Supply Assn.	St. Louis, Mo.
Oct. 24-26	Intl. Assn. of Ice Cream Mfrs.	St. Louis, Mo.
Oct. 26-28	Milk Industry Foundation	St. Louis, Mo.
Nov. 7-11	Natl. Assn. Practical Ref. Engrs.	Los Angeles, Calif.
Nov. 8-11	Natl. Assn. Retail Ice Cream Mfrs.	Milwaukee, Wis.
Nov. 9-11	Institute of Boiler & Radiator Mfrs.	Absecon, N. J.
Nov. 25-29	Refrigeration Service Engineers Society	Atlantic City, N. J. Ambassador Hotel
Nov. 26-28	Air Conditioning & Refrigeration Wholesalers	Atlantic City, N. J. Claridge Hotel
Nov. 26-28	Refrigeration & Air Conditioning Contractors Association	Atlantic City, N. J. Ambassador Hotel
Nov. 27	Air Conditioning & Refrigeration Institute (Directors)	Atlantic City, N. J. Haddon Hall
Nov. 27-29	National Commercial Refrigerator Sales Association	Atlantic City, N. J. Traymore Hotel
Nov. 28-Dec. 1	9th Exposition of Air Conditioning and Refrigeration Industry	Atlantic City, N. J. Auditorium
Nov. 28-Dec. 1	Natl. Warm Air Heating & Air Conditioning Assn.	New York City Hotel Statler
Dec. 1-3	American Society of Refrigerating Engineers	Atlantic City, N. J. Traymore Hotel

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AIR CONDITIONING — LIFE SAVER FOR MODERN HOSPITALS



VALUE OF AIR CONDITIONING to the modern hospital was demonstrated by two rather dramatic incidents that occurred during the hot weather of a few weeks ago. In Chicago, fire department officials sent an emergency call to the Chicago American during the July 4 weekend for help in locating an air conditioner for the Henrotin Hospital room of Dini Gino, a fireman who had been badly burned in fighting a fire in Chicago's Green Mill hotel. The newspaper contacted Jim Monkerud, service manager of Air Comfort Corp., Carrier distributor. Monkerud sped to his company's closed plant, picked up a ¾-ton window unit, and had it installed within minutes. He is shown above with Deputy Fire Marshal Robert Quinn inspecting the unit in Gino's hospital room.



A DRAMATIC PLANE RACE to replace a damaged condenser on air conditioning unit in the operating room of St. Luke's Hospital in Cleveland prevented a critical situation last July 23. Cleveland Hermetic & Supply, Inc., called in by the hospital's staff, found that the condenser, a Halstead & Mitchell unit, would have to be replaced by a completely new one from the H & M factory in Zelienople, Pa. Elmer Wiedwald, president of Cleveland Hermetic, took off in the company's plane, piloted by Al Owens, a customer, and after being forced down once by bad weather arrived at Zelienople field. In a matter of minutes, the replacement was put aboard (above) and the plane was on its way back with the equipment to put the operating room back in operation.

EXPERTS STUDY TRUCK COOLING PROBLEMS

A recent session of the Refrigeration Committee of the Truck-Trailer Manufacturers Association resulted in assignment to manufacturer-experts of three major subjects for special study and definitive reports at the association's annual convention to be held in

January in the Edgewater Gulf Hotel, Edgewater, Miss.

Presiding was L. H. Magor, president, Aluminum Body Corp., Montebello, Calif. After hearing discussion, Magor by agreement with discussion participants directed studies and reports as follows:

Development of a recommend-

ed standard method of rating the various types of refrigerating systems used in truck-trailers—assigned to M. B. Green, Vice President, U. S. Thermo Control Co., Minneapolis.

Truck-trailer insulation—assigned to G. P. Oldham, general sales manager, Gustin-Bacon Mfg. Co., Kansas City.

Refrigerator trailer performance and desirable characteristics—assigned to Harold Johnson, a transport and marketing specialist conducting tests for the U. S. Department of Agriculture.

REVISED ARI STANDARD OUT ON ROOM COOLERS

A completely revised edition of the ARI Standard for Room Air-Conditioners has been published. The new standard, designated as ARI Standard 110-55, was prepared by the Institute's room air-conditioner committee.

The section on rating requirements which ties in manufacturing tolerances with published capacity and other ratings is the key provision in the 16-point program for advertising and selling room air-conditioners developed recently by ARI and the National Better Business Bureau.

Also included in the standard for the first time are the minimum power factor values recommended by ARI and the electric utility industry.

Pamphlets including the new standard and the ARI recommended cooling load estimate form for room air-conditioners are available from ARI, 1346 Connecticut Ave., N.W., Washington 6, D.C., at 35¢ per copy.

AIRTHERM NAMES FIVE

Airtherm Mfg. Co. has appointed five sales representatives in several cities and territories in the east and midwest. Noah M. Simmons Co., Indianapolis, will cover southern Indiana; Stringer and Spencer, Camden, N.J., southern New Jersey; Halberg Co., Brooklyn, N.Y., metropolitan New York area; James F. McEntee, New York, northern New Jersey; Mechanical Equipment Co., Pittsburgh, western Pennsylvania.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$6.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

DEALERS WANTED

LEADING MANUFACTURER OF FLORIST REFRIGERATORS HAS OPENING FOR DEALERS IN THE FOLLOWING TERRITORIES: PENNSYLVANIA, NEW ENGLAND, CAROLINAS, INDIANA AND WEST COAST. PROFIT-MAKING OPPORTUNITY. BOX 10155, COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

AIR-FACTORS INC. ADDS 12,000 SQ. FT. TO PLANT

The management of Air-Factors, Inc., Monrovia, Calif., manufacturer of air distribution and air control products, announces the recent completion of approximately 12,000 sq. ft. of factory space additional to and adjoining its plant at 1624 S. Raymond Ave. Sales manager of the company is Frank McDonald.

U.L. APPROVAL GIVEN REMCO PRODUCTS

Remco "Super-Flo" and "Cross-Flo" filter-driers and "E-Z-See" liquid indicators have been approved by Underwriters Laboratories, according to Ken Newcum, company vice president.

Newcum said that the filter-driers have been approved for use with both Freon-12 and Freon-22. The UL approval on the company's liquid indicators covers Remco's electro tin-plated steel units in flare sizes $\frac{1}{4}$ " through $\frac{5}{8}$ " SAE and sweat sizes $\frac{3}{8}$ " O.D. through $\frac{5}{8}$ " O.D.

Minimum bursting pressure required for use with Freon-22 is 1500 psi and for Freon-12 1175 psi. Newcum pointed out that on some applications of air-cooled units using F-22 operating head pressures have been found to run higher than normal, and UL may require ultimate bursting pressure on the high side to be a minimum of 2000 psi. The company is pre-

pared to supply units to meet these latter requirements upon request, Newcum said.

The high pressure pyrex glass viewing tubes used in the company's liquid indicators have a safe working pressure of 500 psi with a five-to-one safety factor, he added, so that they now readily meet UL minimum requirements for use with F-22.

GENETRON READIES NEW DANVILLE, ILL. PLANT

General Chemical Div., Allied Chemical & Dye Corp., announced recently that it expected to have its large new Danville, Ill., plant for "Genetron" production in full operation by about Sept. 15. The Danville plant has been built especially to supply midwestern producers of refrigeration and air conditioning equipment and aerosols.

The company also announced that it has recently completed expansions of its Baton Rouge, La., facilities.

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unexcelled storage capacity
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Leak Detector Outfit



Outfit includes leak detector stem, 3 ft. of suction hose, and tank adapter with needle valve for economy and exact flame adjustment.

Even the most minute leaks of halide refrigerant gases can't escape this extremely sensitive, leak detector outfit. Just attach to the valve of a lightweight MC acetylene tank. Detached from tank, this unit fits handily into tool box. Ask your jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.

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INDEX TO ADVERTISERS

October, 1955

A

Acme Industries, Inc.	30-31
Aerovox Corp.	4
Alco Valve Co.	1
Allin Mfg. Co.	103
American Bitumuls & Asphalt Co.	53
American Brass Co.	69, 105
Ansul Chemical Co.	13
A-P Controls Corp.	Cover 3
Aurora Pump Co.	100

B

Barber-Colman Co.	112
Beach-Russ Co.	56
Bell & Gossett Co.	16
Brunner Mfg. Co.	2

C

Carbonic Dispenser, Inc.	52
Chase Brass & Copper Co.	73
Caldin Cabinet Co., Inc.	72
Commercial Credit Corp.	25
Copeland Refrigeration Corp.	Cover 2
Curtis Refrig. Machine Div., Curtis Mfg. Co.	93

D

Davison Chemical Co.	66
Detroit Controls Corp.	23
Drayer-Hanson, Inc., Sub. of National-U.S. Radiator Corp.	61
Duro Metal Products Co.	29

E

Electric Auto-Life Co.	70
Eston Div., American Potash & Chemical Corp.	78

F

Federal Refrigerator Mfg. Co.	50
Flexonics Corp.	96
Frankell Mfg. Co.	99
Frick Co.	74
Frigidaire Div., General Motors Corp.	49

G

Garman Co.	102
General Chemical Div., Allied Chemical & Dye Corp.	6-7
General Electric Co.	5
General Tire & Rubber Co.	62
Goulds Pumps, Inc.	92

H

Halstead & Mitchell	101
Heat-Timer Corp.	115
Henry Valve Co.	8
Highside Chemicals Co.	26
S. A. Hirsh Mfg. Co.	53

I

Ideal Cooler Corp.	117
--------------------	-----

J

Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.	103
Johns-Manville	15

K

Kinney Mfg. Co.	10
Kramer Trenton Co.	60

L

Larkin Coils, Inc.	65
Lehigh Mfg. Co.	9
Linde Air Products Co., Unit of Union Carbide & Carbon Corp.	17, 117

M

Maid-O-Mist, Inc.	115
Jas. P. Marsh Corp.	24
McQuay, Inc.	14
Minneapolis-Honeywell Regulator Co.	27
Miracle Adhesives Corp.	71
J. W. Martell Co.	58, 100
Mueller Brass Co.	76

P

Peerless Pump Div., Food Machinery & Chemical Corp.	33
Penn Controls, Inc.	34

Pinnacle Equipment Co.	74
Protesel, Inc.	68
Pyramid Instrument Co.	18

R

Radio Corp. of America	57
Ranco, Inc.	110
Reading Tube Corp.	113
Redmond Distributors, Inc.	94
Refrigeration Engineering, Inc.	19
Revere Copper & Brass, Inc.	67
Rotary Seal Co.	72

S

Servel, Inc.	32
Sporlan Valve Co.	59
Superior Valve & Fittings Co.	75

T

Tecumseh Products Co.	28
Tenney Engineering, Inc.	20
Texas Co.	54
Tulsa Canvas Products Co., Inc.	102
Typhoon Air Conditioning Co., Inc.	89

U

Union Asbestos & Rubber Co.	80
Union Carbide & Carbon Corp., Linde Air Products Co.	17, 117
United Wire & Supply Co.	112

V

Viking Copper Tube Co.	70, 98
Virginia Smelting Co.	51, 107

W

Wagner Electric Co.	97
Wagner Tool & Supply Co.	108
White-Rodgers Electric Co.	21
A. H. Witt Co.	98
Wolverine Tube Div., Calumet & Hecla	11
Worthington Corp.	12

Y

York Corp.	114
------------	-----

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with  liquid-charged expansion valves!

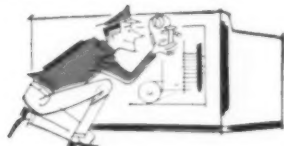
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Discover the unusual adaptability of dependable A-P valves to scores of low temperature, commercial and air-conditioning applications. Once you experience the substantial inventory, time and work-saving advantages — you'll stay with A-P for keeps!



POSITIVE CONTROL AT ALL TEMPERATURES —

No matter what temperature difference exists between valve and bulb — the liquid-charged bulb continues to provide positive control.



MOUNTS IN ANY POSITION —

Boon to the service engineer because valves can be installed upside down, sideways or at any angle.



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Covers entire application range. All valves manufactured for Freon 12 & 22, Genetron and Methyl Chloride. Various capacities for each refrigerant.



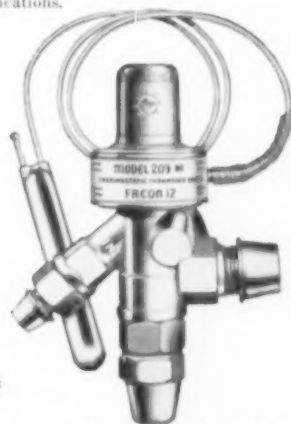
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Model 207C — one valve suitable for all operating temperatures

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